

Socio-constructivist scenarios with Community, Content and Collaboration Management Systems

Saab Training Systems Science Council's seminar

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Goal of this talk

**Discuss pedagogical & technical support for
socio-constructivist pedagogies on the Internet**

Contrast this with traditional e-learning

(note: skips simulation, tele-teaching, virtual libraries, etc. !!)

Menu of this talk

The case for socio-constructivist activity-based teaching

Current methods and tools for distributed learning

Internet spirit 2002: C3MS Portals

C3MS portals & educational scenario scripting

Standardization & quality issues

Some conclusions

1. The case for socio-constructivist activity-based teaching

All learning theories address real problems

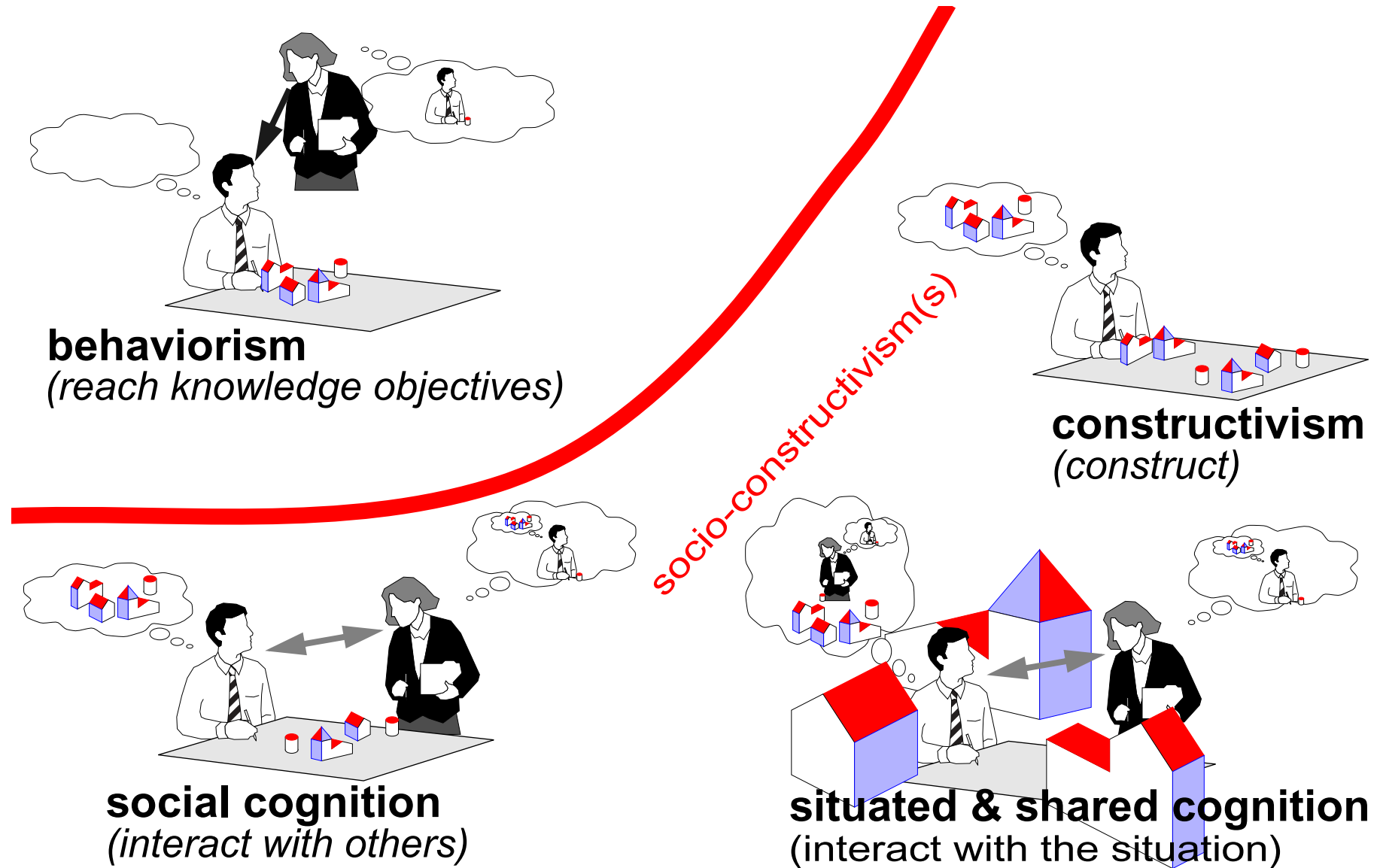
All pedagogical models have their usefulness

but ...

Computer-based instruction (CBT)
- what is sold as “e-learning” today -
gets too much attention !

Rich activity-based educational designs do not ...

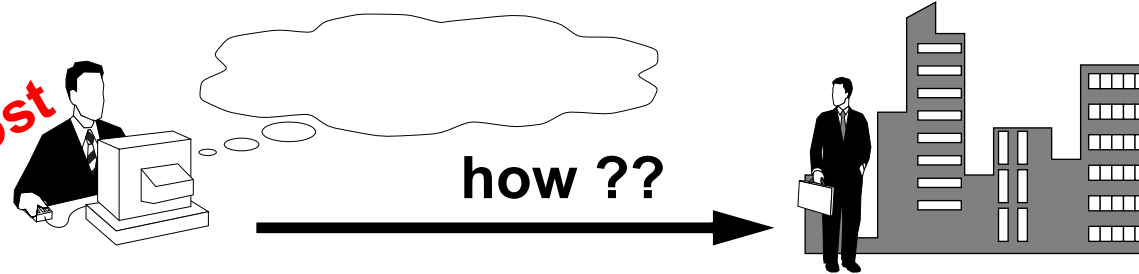
1.1. Some major theories about learning



1.2. The issue of knowledge Transfer

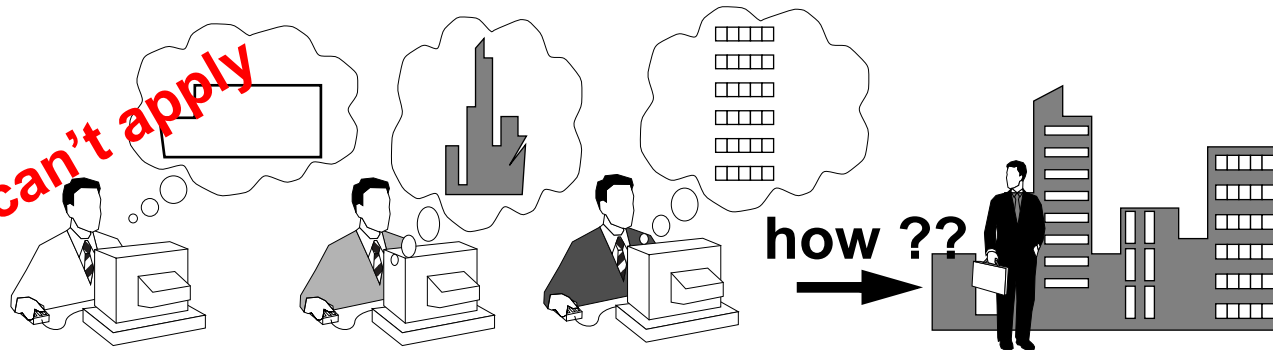
Traditional learning by projects

students are lost

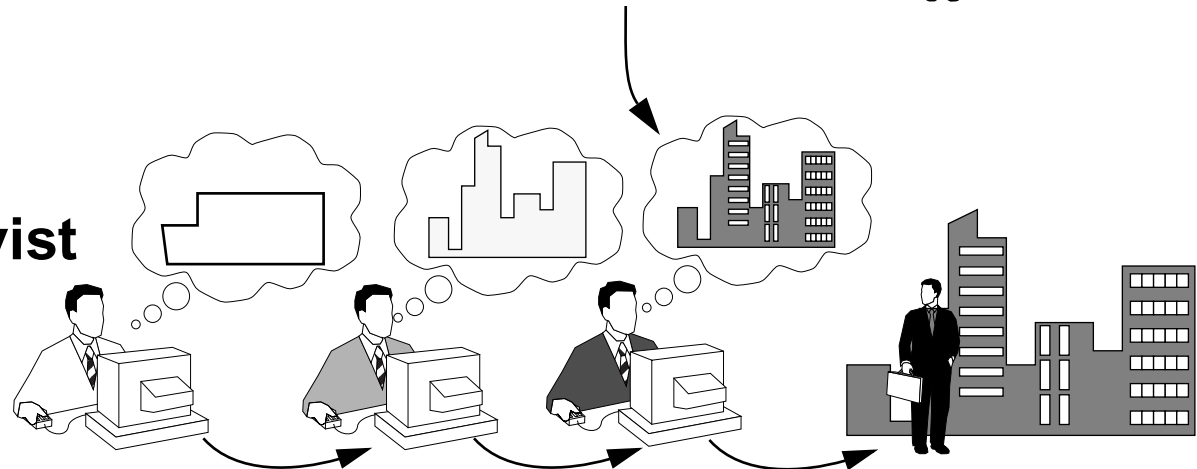


Traditional e-learning

students can't apply

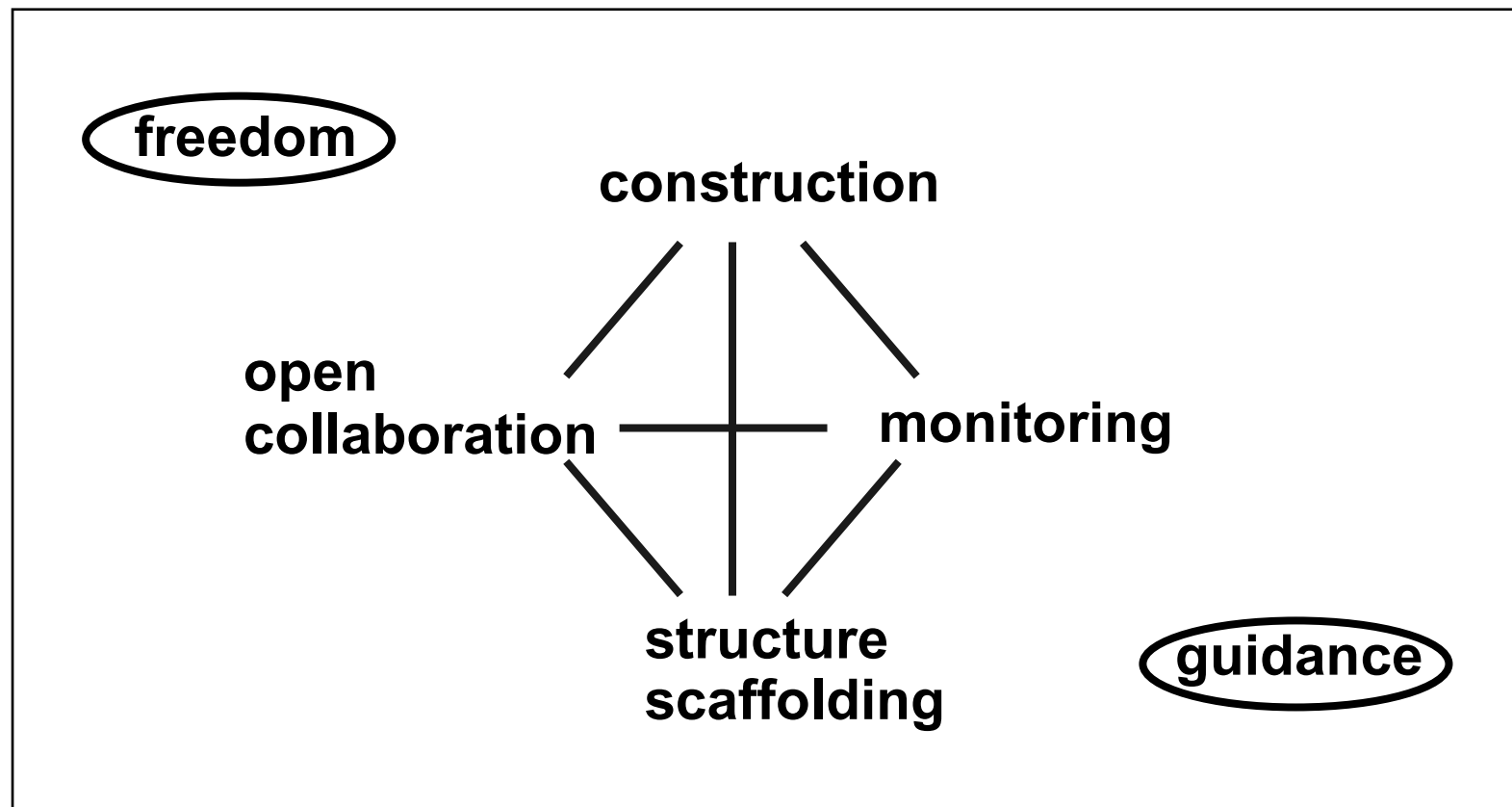


Structured socio-constructivist learning:
scaffolding guidance

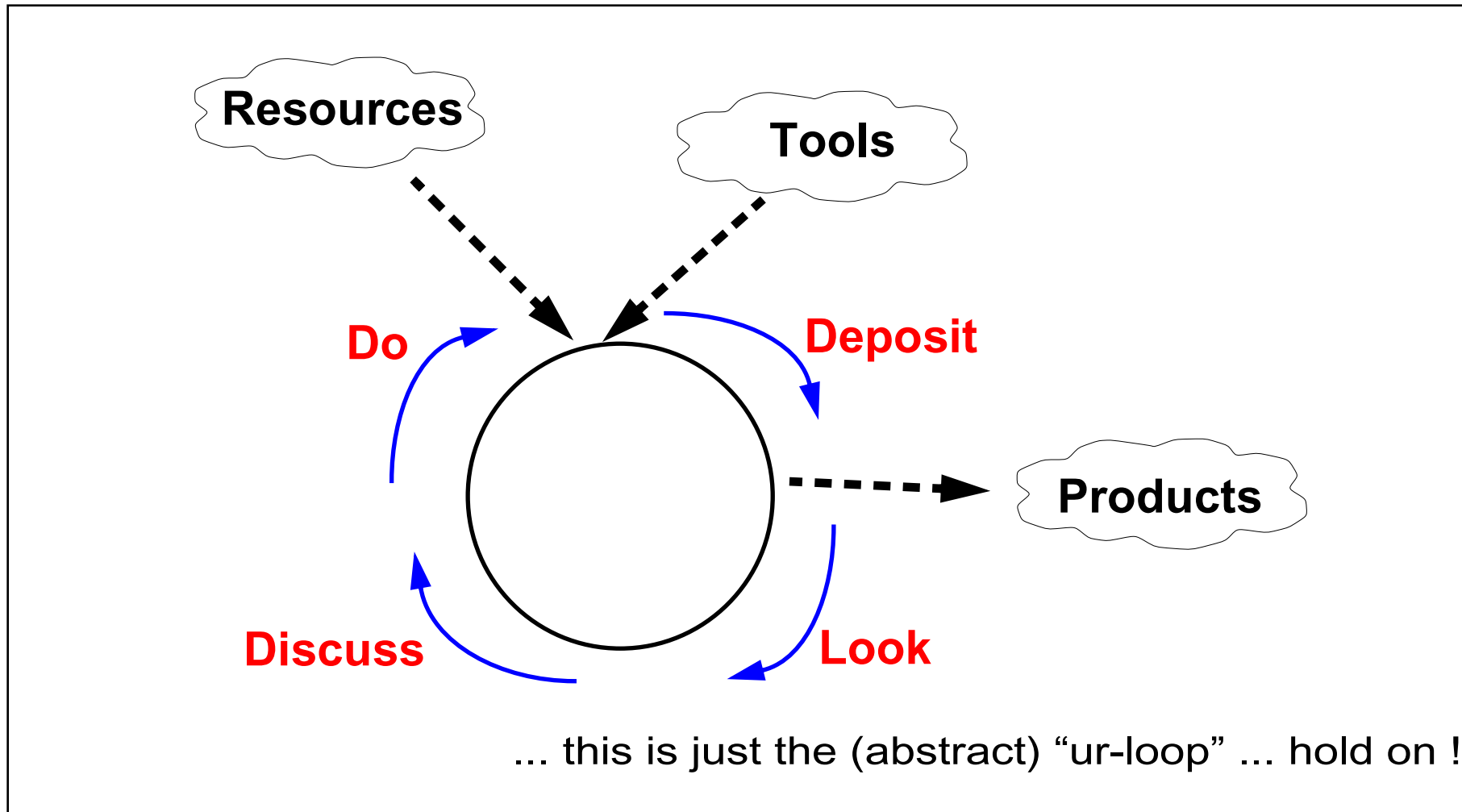


1.3. Structured socio-constructivist pedagogical scenarios

- Open ended & “rich” socio-constructivist designs are **more effective** if individuals and groups have to evolve within somewhat **specified scenarios**



- Scenarios are **sequences of activity phases** within which group members **do tasks** and **play specific roles**
- This orchestration implies organizing **workflow loops**



1.4. The computer in a socio-constructivist perspective

- the computer is merely a facilitating structure, a thinking, working & communication tool

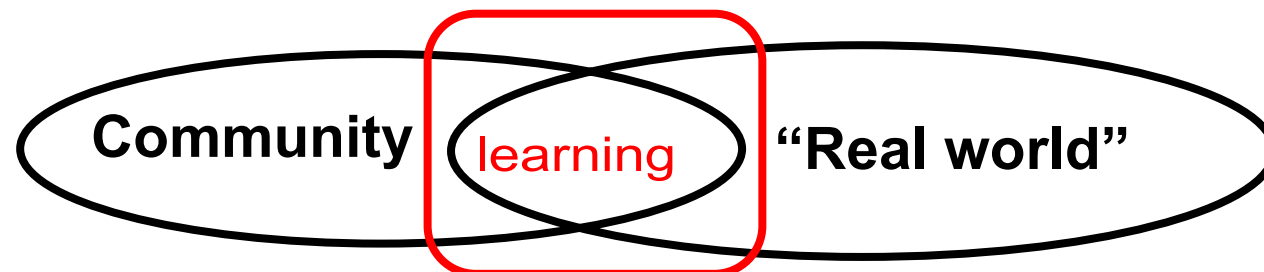
<i>Elements</i>	<i>teacher</i> (manager)	<i>learner</i> (worker)	<i>computer</i> (tool)	<i>designer</i> (resource)
Goal setting	helps or defines	defines or refines	provides tools	provides ideas & half-baked models
planning	suggests & controls	does		
monitoring	audits & helps on demand	self-observation, diaries		observes
contents	suggests, produces	uses & produces (!)	storage, search & awareness tools...	can provide & develop
tool use	configures, helps	selects, learns, uses	offers reflection	

- Most student and teacher activities should be supported by computational tools and lead to new “contents”

1.5.Learning within a community and within context

A sampler of arguments:

- members of a community tend to make better progress (**peer help** and **mutual stimulation**)
- some goals **can't be reached alone** (distributed cognition)
- a group can develop **special language** and practice adapted to specific problems
- knowledge through **enculturation** (collective memory)
- cognition is **tied to experience** (grounded)
- communities **can extend** beyond formal groups of learners
- a lot of learning **is informal**
- good communities are **knowledge management** aware



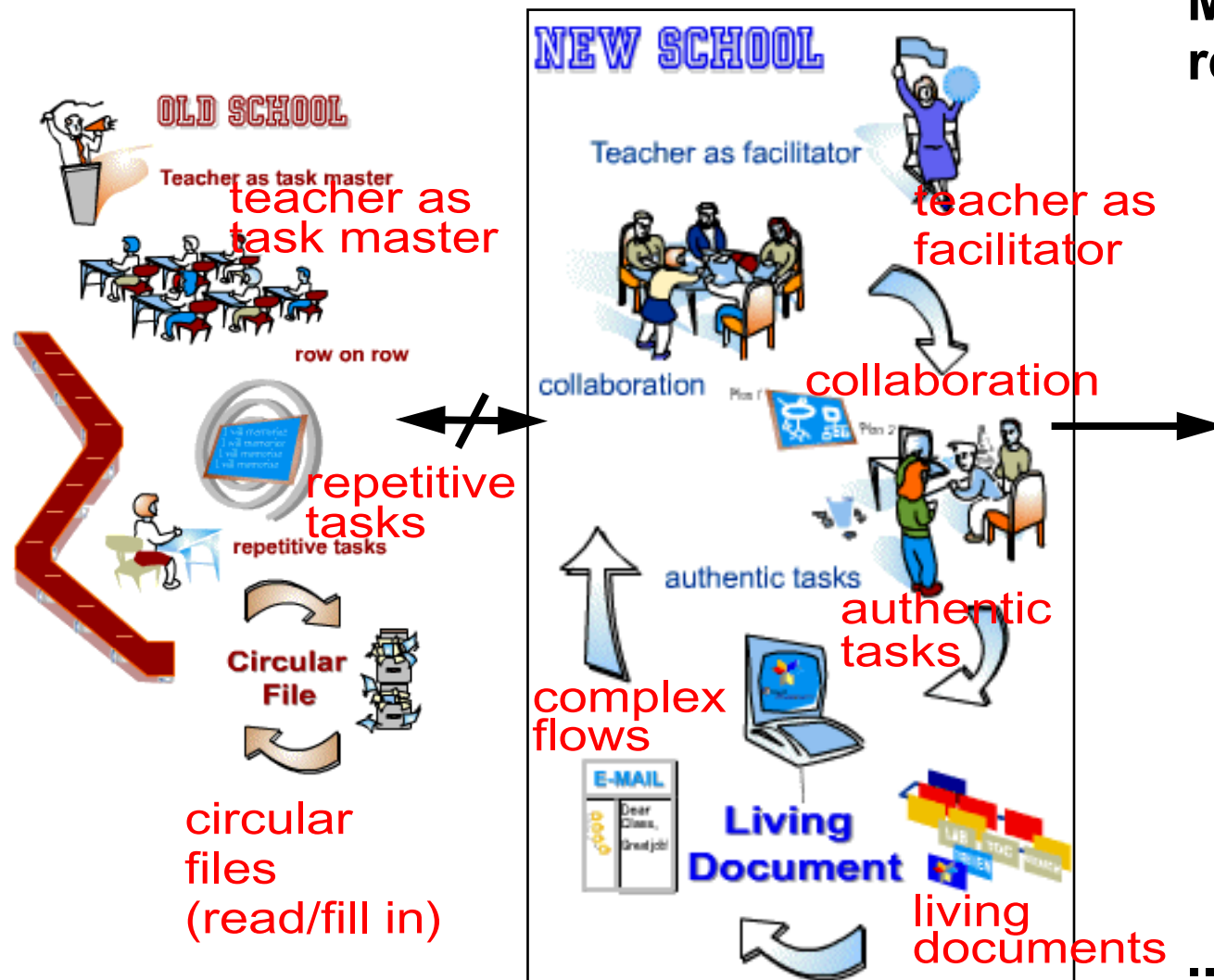
1.6. Requirements for socio-constructivist tools

<http://www.worldbank.org/worldlinks/english/training/world/pbl/newold.htm>

**Minimal (!)
requirements:**

- Content & knowledge management**
- Document & knowledge exchange**
- Project mgmt support**
- Community management**

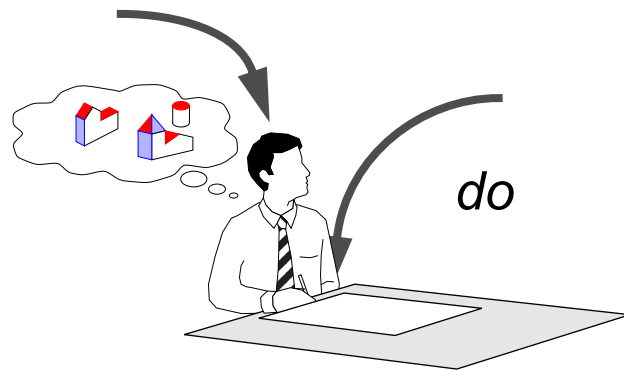
... more as needed



2. Current methods and tools for distributed learning

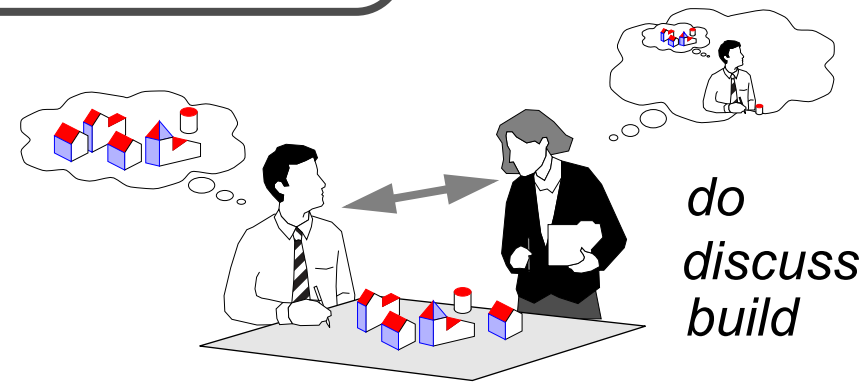


**bad content transmission:
web pages / videos**



**good content transmission:
instructional pedagogies**

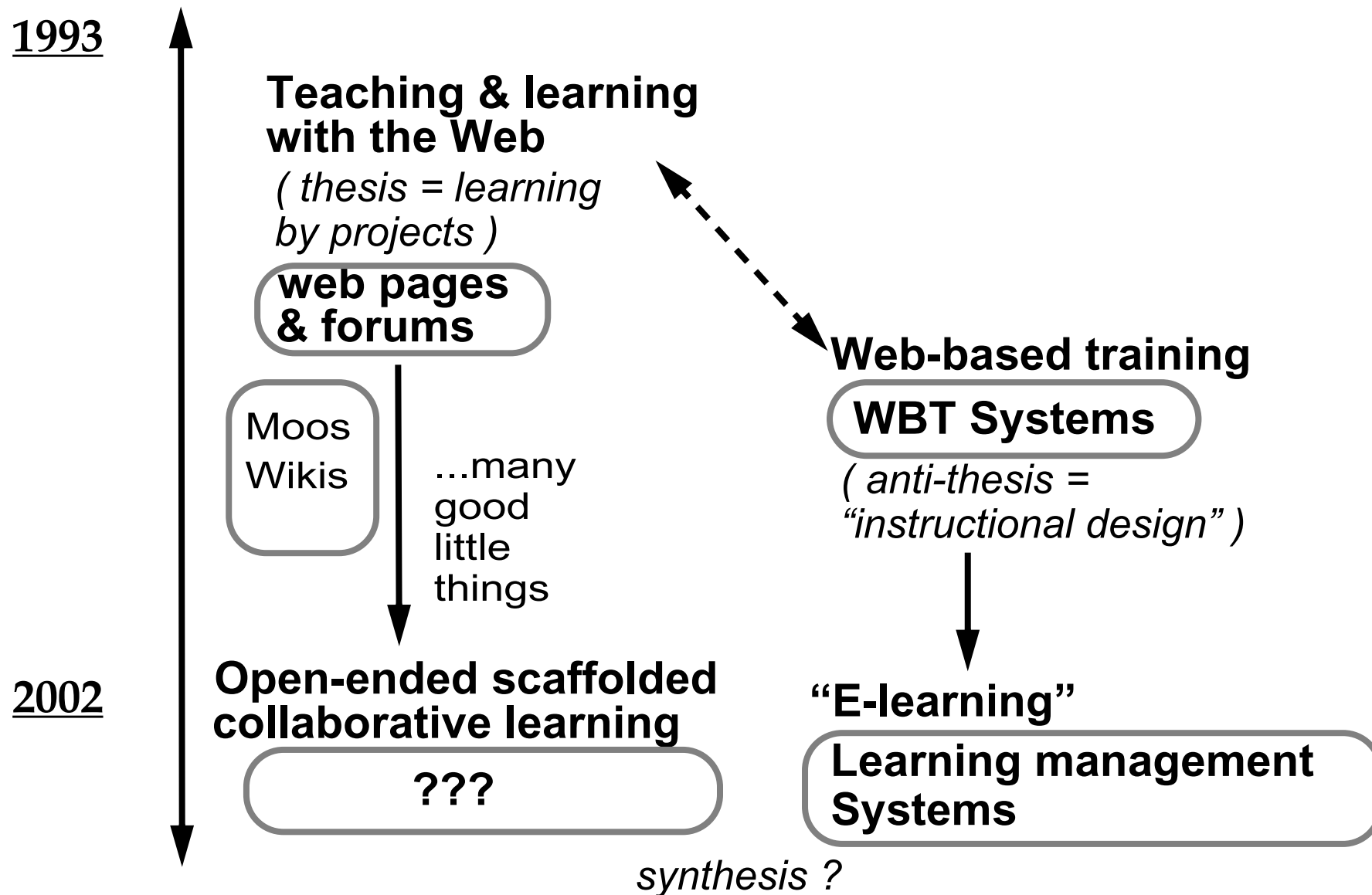
**“Learning Management
Systems”**



**socio-constructivist
pedagogies:**

?

Socio-constructivists were first - what went wrong ?



4 hypothesis on the future of socio-constructivist tools:

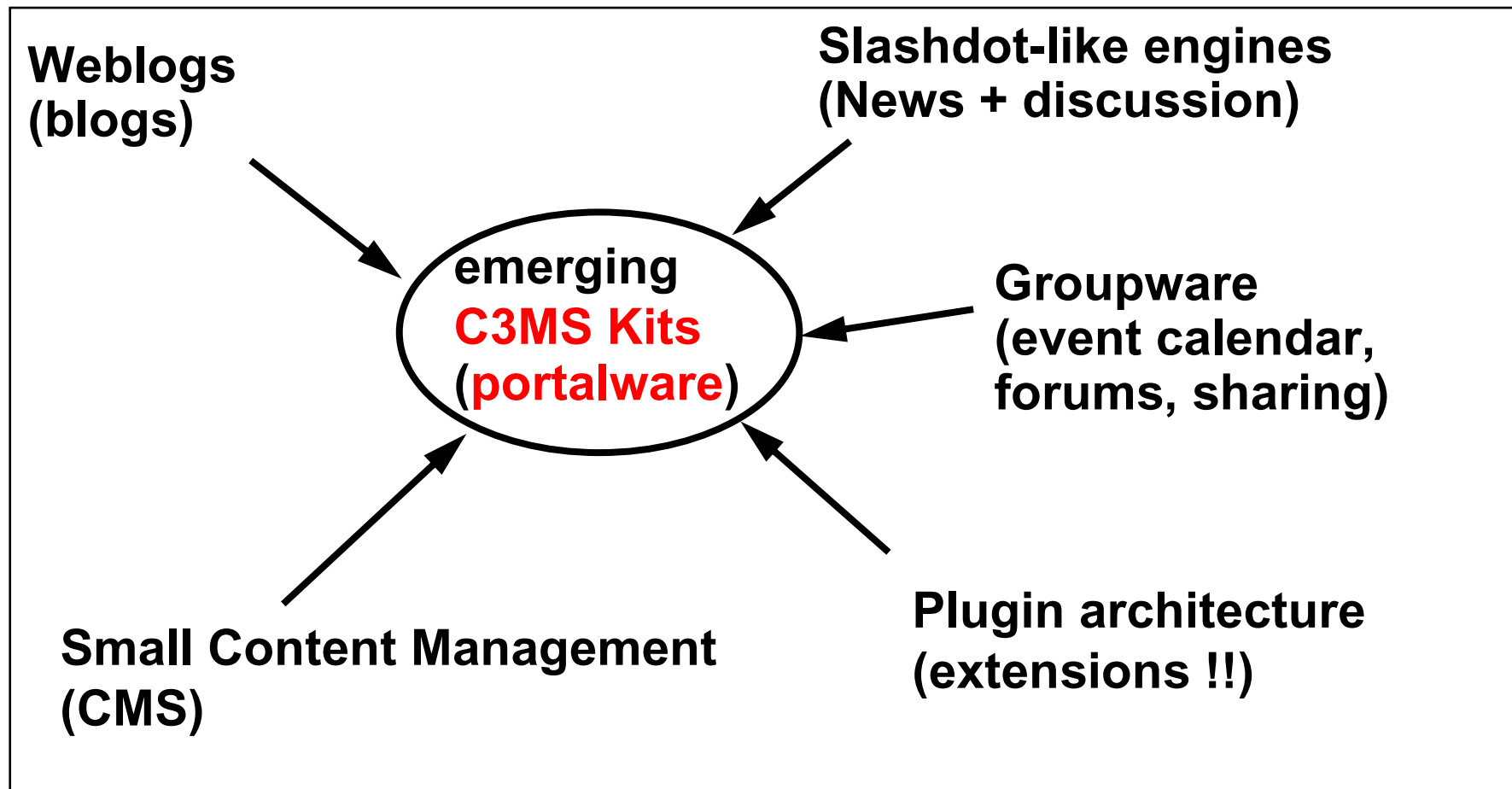
1. It won't happen, because ***you can do good things without much specific learning technology***
2. It won't happen because "micro-worlds constructivists" do more "sexy stuff", e.g. interactive simulations
3. It won't happen because systems that emphasize the teacher's role as manager won't attract money
4. It will happen, because countries with strong socio-constructivist elements in their curricula perform well (e.g. Finland in the PISA/OECD test)

My hypothesis: It won't fully happen in the next future,
... but we can improve on the situation.

- People ***like tools for doing, thinking, collaborating*** on which we will build
- The same tools are of general use for the "learning organization"

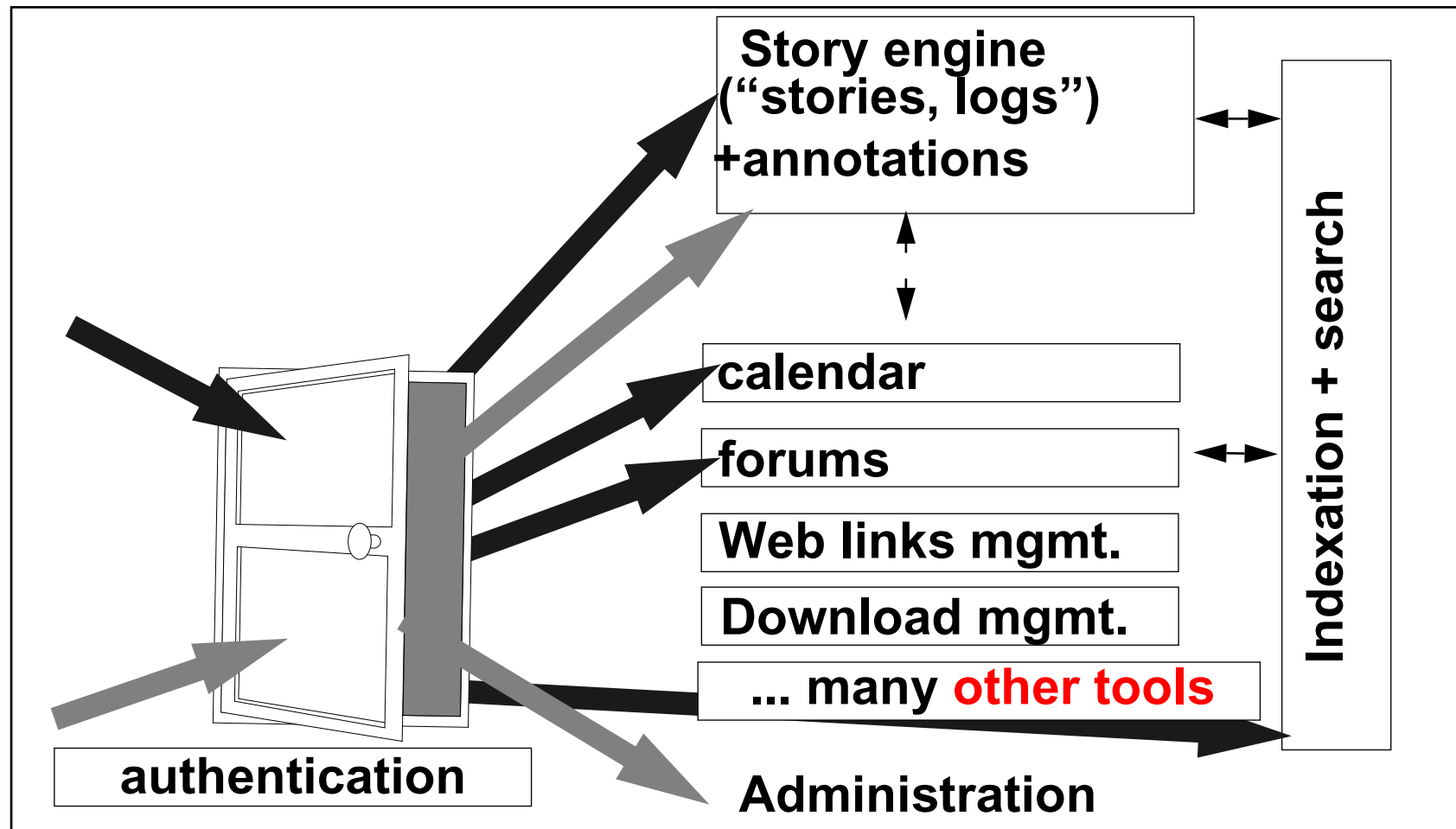
3. Internet spirit 2002: C3MS Portals

Community, Content, & Collaboration Management Systems



- ... it's a MEGA trend !
- **Examples: PostNuke, PhpWebSite, Drupal, Jetspeed,**

Base features of the C3MS portal



- **Integration** of most applications (authentication, interfaces,...)
- **User system** (administrator, members, invited, ..)
- **Plug-in architecture** ! (**YOUR** organization can write modules)

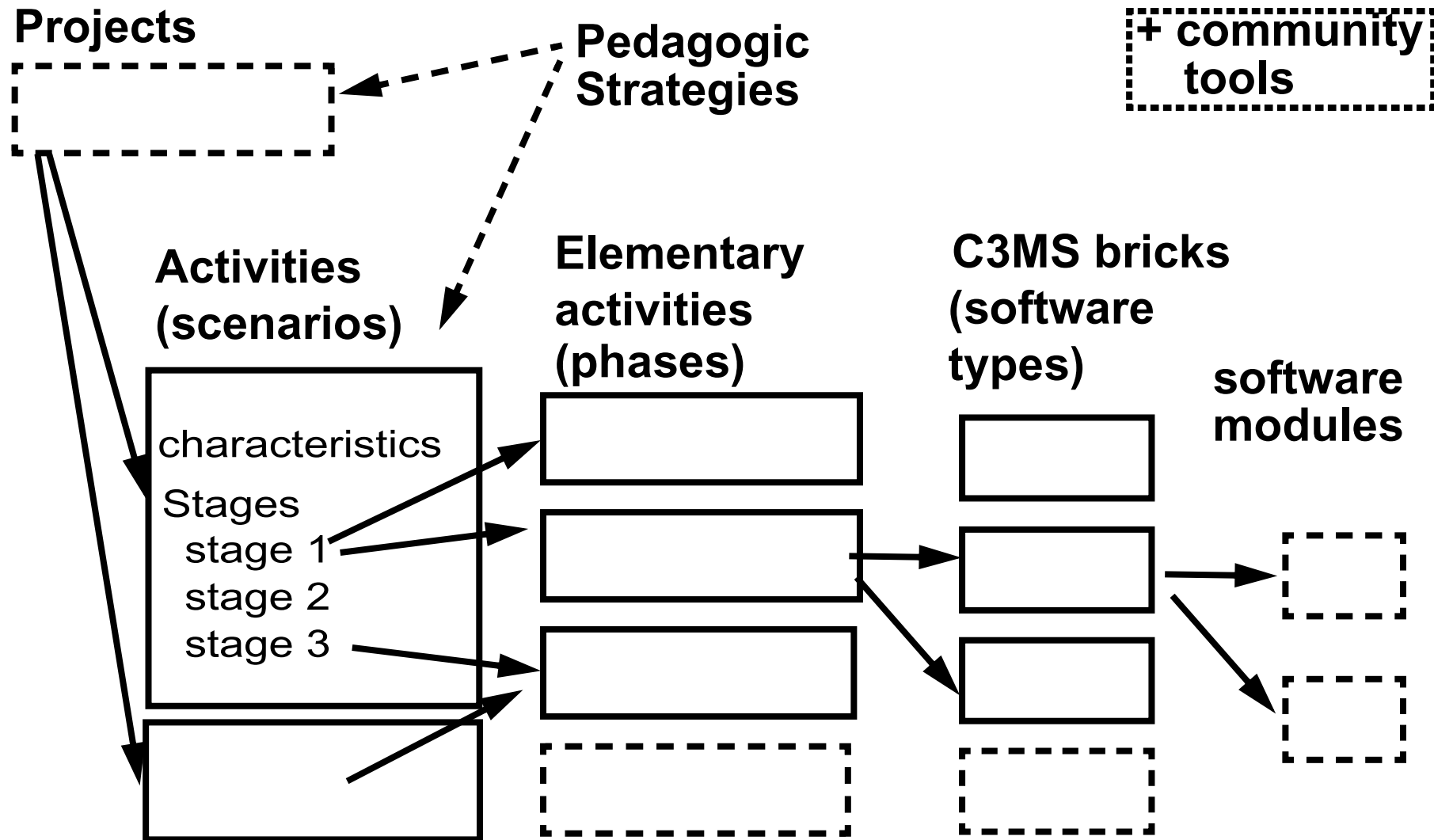
WOW ...

- it works (thousands of sites, some of which thrive)
- people even **learn** with them
- some good **communities of practice** or communities of interest
- many people join to improve these systems and write modules:
 - like: collaborative hypertexts (wikis), pictures galleries, simple content management systems, event calendars, chats, project managers, file-upload, glossary management, weather, shout boxes, chats,
- ***might*** be useful to support educational scenarios

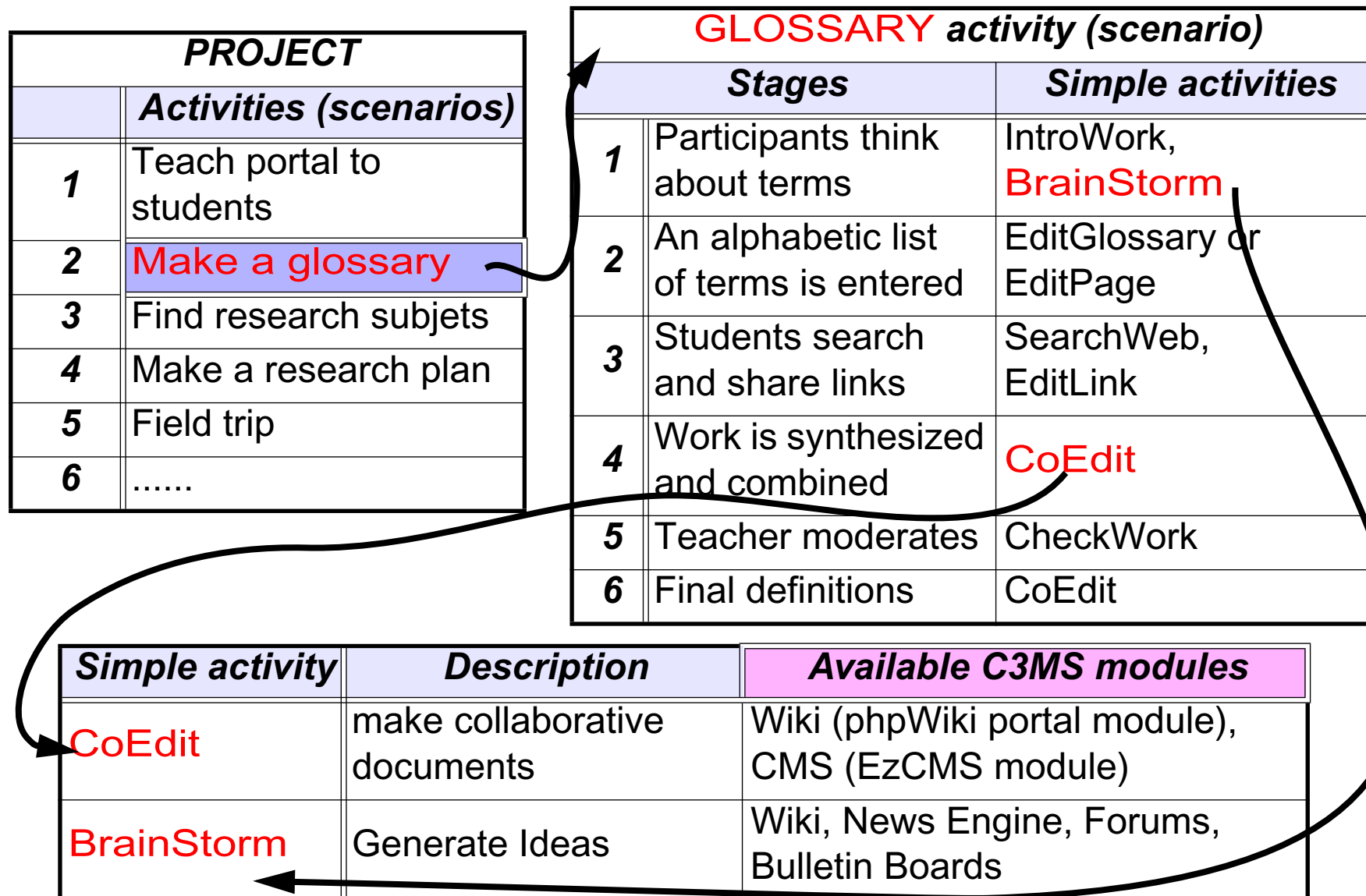
STRANGE ...

- major use in education is **limited** to student portals and user support in industry
- weblogs (diaries) are getting a bit popular
- overall: little creative use in education
(few documented socio-constructivist scenarios)

4. C3MS portals & educational scenario scripting



4.1.planning example: Study architectures of Göteborg



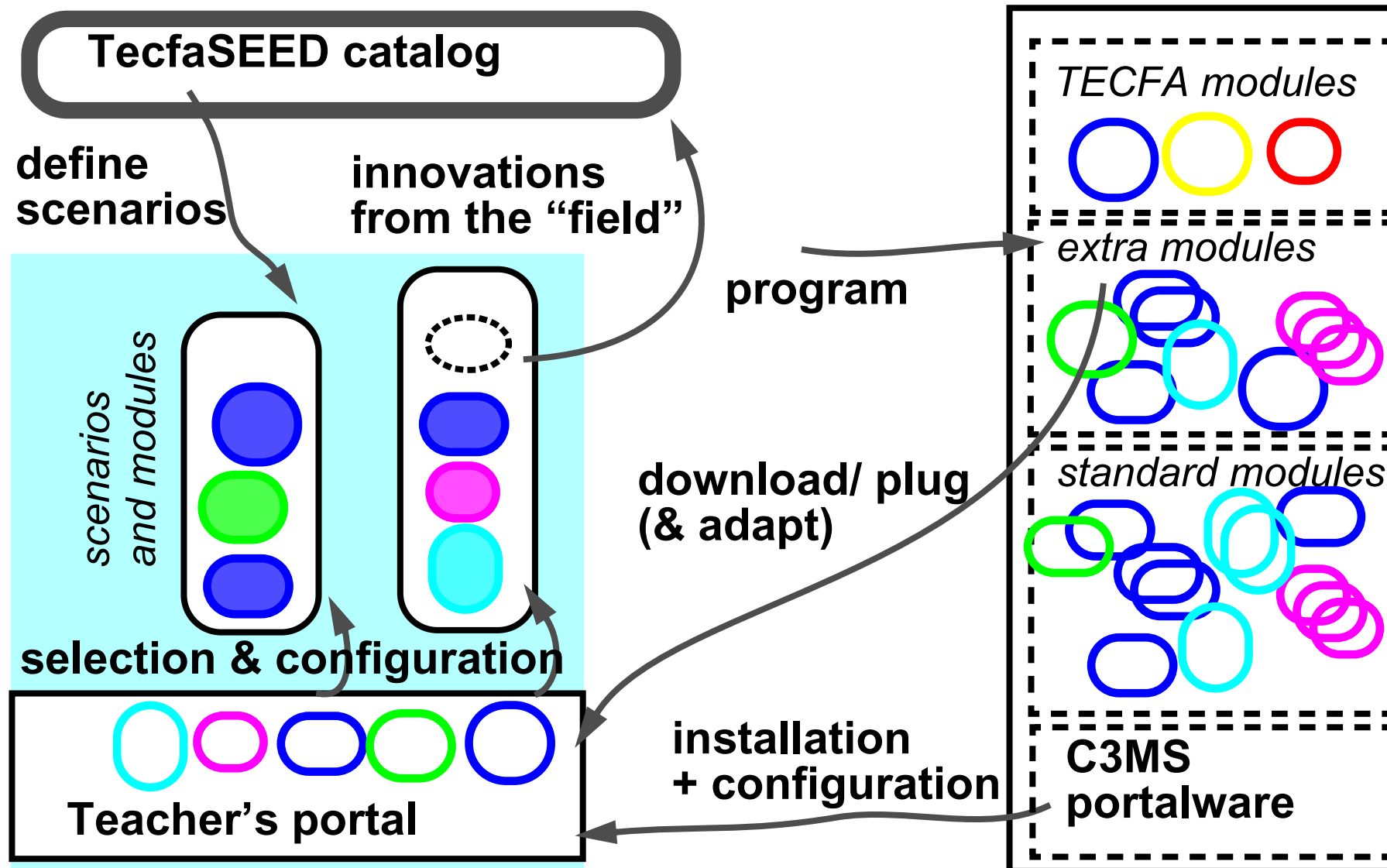
Result (one single activity of the whole project)

(previous step: learn portal)

Instantiated example "glossary" activity (activity 2)			
Stages		Tools	Instructions
1	Suggest terms	Wiki (= coll. hypertext)	Each student must suggest 3 terms and enter them
2	Provisional list of terms	Wiki	Together in class we clean up the list
3	Search and sharing of results	Google, Links manager	Each student must provide 4 links and make comments to 2 other
4	Raw information is synthesized and combined	Wiki	Each student must enter 2 definitions, make links from "his" definitions to others and modify others
5	Teacher moderates	News engine	Teacher will give feedback in an article
6	Students produce final definitions	Wiki	Students can make final modifications

(next step: find research subjects)

4.2. So what does “scripting scenarios” mean ?



5. Standardization & quality issues

5.1 Standards (mostly just emerging)

	<i>behaviorist</i>	<i>socio-constructivist</i>
<i>Data</i>	metadata, quizzing, packaging, simple sequencing learning design (new) learning objectives	metadata structured text internet formats
<i>Systems</i>	IMS compliant Learning Content & Management Systems ?	portals web services bricks for portals
<i>Learning design</i>	?	?

5.2.Data standards

A. The behaviorist IMS/ADL/SCORM e-learning framework

- Describes CBT contents as **data**
 - Mostly sequential contents transfer + quizzing
 - Unclear instructional standards: page-turning “shovelware” only ?
- **Modularity**
 - Allows for *modular management* of reusable learning contents
 - But: how easily can contents be hacked à part and repurposed ?
- **New: Learning Design (LD) educational markup language**
 - unclear how fully standards compliant interpreters will work
 - unclear if we will get interpreters for “active” and open scenarios
- **Summary: good standards for instructionalist pedagogies**

B. Socio-constructivist standards: **none really**, but:

- text encodings (like DITA or DocBook)
- people are encouraged to use standard data formats
- unclear if we will be able to use parts of IMS, e.g. LD

5.3. Portals

A sampling of standards your IT department should track:

- **SOAP (Simple Object Access Protocol)**
- **UDDI (Universal Description, Discovery and Integration)**
- **WSDL (Web Services Description Language)**
- **WSIF (Web Services Invocation Framework)**
- **WSFL (Web Services Flow Language)**
- **ebXML Messaging Service Specification**
- **WSIL (Web Services Inspection Language)**
- **WSRP (Web Services for Remote Portals)**
- **Portlets (Java-server specific portal plug-ins)**

The current situation:

- little serious use of this in education
- **complicated**, so the cost will be very high

5.4. Costs and benefits of current standards

The goals:

- beat elite american graduate schools
- turn our own industries into better **learning organizations**
- produce **flexible** and **active** citizens

The educational technology priorities (IMHO):

- support **activity-based learning** (project, problem-based, etc.)
- support **open & informal learning** (via community portals)

CBT/e-learning “Shovelware” **can't help** with this

- very appropriate for “elementary learning” based on knowledge transfer, ok for drill & practise, etc.

Do we really **need** standards for open activity-based learning ?

- any tutorial can do, students have to rebuild “it” anyhow
- printable documents are generally more useful
- “real” information does not appear as pedagogical material

5.5.(No) conclusion

Standards are *just emerging*

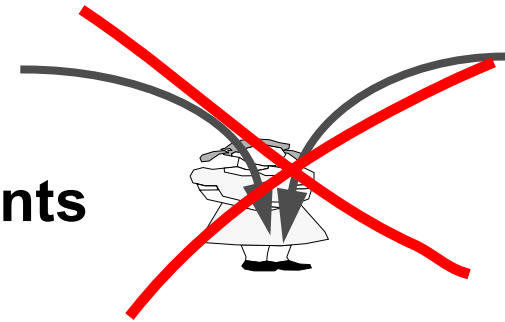
- emerging e-learning standards are very **complex**,
 - *not sure if industry can/will implement* full interpreters
 - not sure if we will get tools for open activity-based learning
 - rich **pedagogical standards are missing** (and even CBT is not clear)
- If you are interested in our “C3MS” approach, choose either:
 - Java-based **enterprise portals** that implement emerging standards
 - *popular open source kits* (“**street standards**”)
 - use them **simultaneously** for activity-based teaching, informal learning, knowledge management and community building

It is **too early for quality guidelines**, difficult to find criteria for:

- teacher as a manager of projects and tasks
- quality of student productions
- good scenario suggestions and associated tools
- the “learning experience”
- integration of the learning environment with work and community

6. Some conclusions

- (1) Shift the focus from learning materials to learning activities
- (2) Protect our employees, children and students from too much behaviorist e-learning !
- (3) Do not overscript, be somewhat “authentic” e.g. don’t transform construction into programmed learning
- (4) Use standards from the “real world”
- (5) Start with pedagogies & technologies that are somewhat familiar. E.g. use real workplace tools if possible.
- (6) Most standards are still missing or unimplemented, most refer to either data or computer programs, nothing (IMHO) about the real learning experience ... how about (rich) educational standards ?



Just born :

Tecfa SEED community site

<http://tecfaseed.unige.ch/door/>

Available now:

- **exchange & some support**
- **examples of running portals (school & university education)**

Available soon (summer 2003):

- **repackaged and documented “PostNuke” C3MS software**
- **modules for activity planning, project management, etc.**
- **Catalog = cookbook with “half-baked” scenarios and tools**

SEED is an European IST programme project (No IST-2000-25214) and the swiss part is sponsored by the Swiss Federal Office for Education and Science (No OFES: 00.0287).

