



Center for
**LifeLong
Learning
& Design**

University of Colorado at Boulder

**Wisdom is not the product of schooling
but the lifelong attempt to acquire it.
- Albert Einstein**

Meta-Design and Under-Design

Gerhard Fischer

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Cultures of Participation

Fundamental Challenge and Opportunity

consumer cultures

focus: produce finished goods to be consumed passively



cultures of participation

focus: provide all people are with the means to participate actively in **personally meaningful** problems

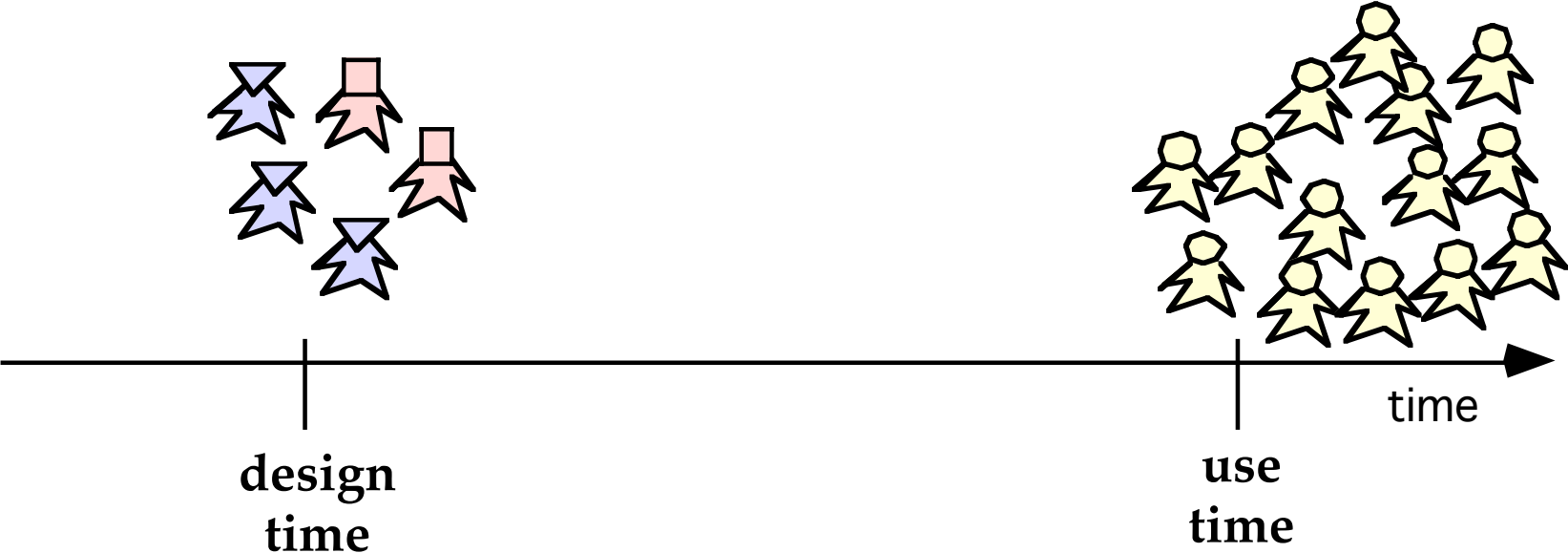
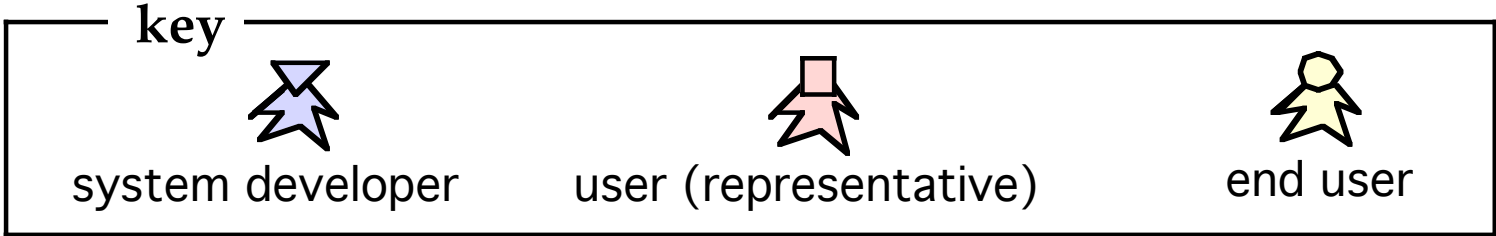
Some Examples of Web 2.0 Environments

Systems	Focus	Interesting Aspects
Flickr	social photography site	users post, share, comment, and create classification systems
YouTube	video clips	contributions by amateur film makers; forum for new film making talent
Facebook	social networking site	the “hot” site for college undergraduates
Wikipedia	encyclopedia	exploits the power of mass collaboration; covers the “long tail”
Second Life	Internet-based virtual world	user-defined world in which people can interact, play, do business, and communicate
3D Warehouse	3D models created with SketchUp	models can be inserted and referenced in Google Earth
Wikis	collaboratively constructed websites with low threshold for participation	content is a conversation rather than a monologue (e.g.: compared to the broadcast aspects of web portals)
Linux	collaborative constructed software system	rapid product iterations based on contributions from many people and mutual feedback

Meta-Design: Design for Designers

- **meta-design explores:**
 - cultures in which participants can **express themselves** and engage in personally meaningful activities
- **meta-design requires**
 - designers giving up some **control** at design time to contributors at use time
- **meta-design raises research problems**
 - design trade-offs between standardization and improvisation
 - new **design methodologies**
 - a new understanding of **collaboration, motivation, and creativity**
- **meta-design** provides a theoretical framework for **Web 2.0 technologies**

Design Time and Use Time



world-as-imagined
prediction
planning

world-as-experienced
reality
situated action

Meta-Design: Creating Socio-Technical Environments

- **socio-technical environments**
 - should be **living entities**
 - capable of **integrating** computing infrastructures and participation processes
 - support collaboration not only about design artifacts but also about the **goals** of the design activity
 - **expand boundaries** and **redistributing control**

- **some rationale**
 - “The experience of having participated in a problem makes a difference to those who are affected by the solution. People are more likely to like a solution if they have been involved in its generation; even though it might not make sense otherwise” (Rittel, 1984)
 - “I believe passionately in the idea that people should design buildings for themselves. In other words, not only that they should be involved in the buildings that are for them but that they should actually help design them” (Alexander, 1984)

Underdesign

- **relationship to meta-design:** the “designers engaged in underdesign” design the context and let the owner of the problems / artifacts design the content

- **underdesign**
 - does not mean: design less but to design environments (at design time) where users / inhabitants / prosumers / owners of problems can have meaningful participative role in the design process
 - avoids that most of the relevant knowledge gets forced to the earliest part of the design process, when everyone knows the least about what is really needed

- **media and underdesign**
 - physical structures: moving walls (see L3D Lab design)
 - impact of underdesign on creativity: avoid micromanagement → create “opportunity space” for exploring innovative ideas

What Do Meta-Designers Do?

- they use their own creativity to create socio-technical environments in which **other people can be creative**
 - by creating **contexts** and **content creation** tools rather than content
 - by creating **technical** and **social** conditions for broad participation in design activities
 - by supporting '**remixability**'

The Seeding, Evolutionary Growth, Reseeding (SER) Model Supporting Meta-Design

▪ at design time:

- development of an initial system that can change over time (seed)
- underdesign: creating design options for users

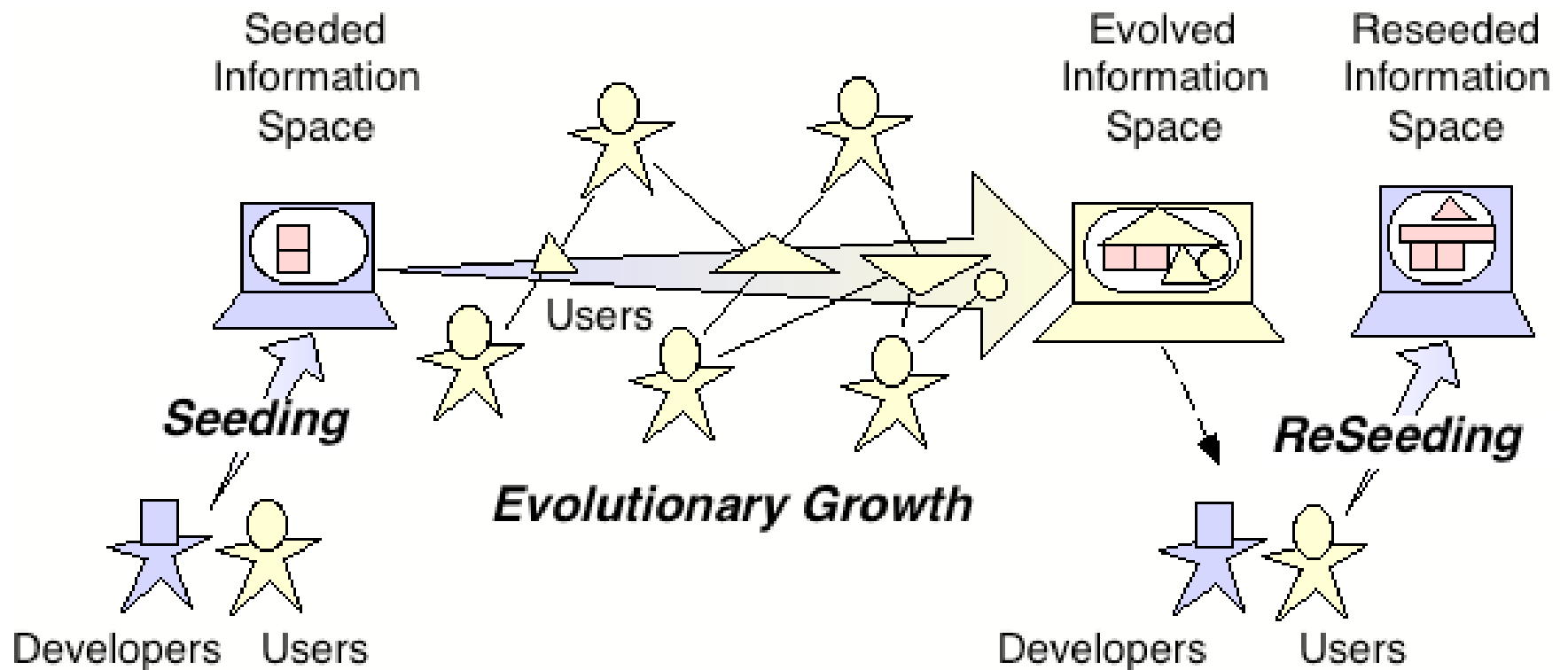
▪ at use time:

- support for “unself-conscious culture of design”: users will experience breakdowns by recognizing “bad fit” at use time
- end-user modifications allow users to address limitations they experience
- evolutionary growth through incremental modifications

▪ reseeding:

- significant reconceptualization of the system
- account for incremental modifications, mitigate conflicts between changes, and establish an enhanced system

The Seeding, Evolutionary Growth, Reseeding (SER) Model



Meta-Design: Transforming Application Areas

- **design:** customization, personalization, tailorability, end-user development, design for diversity
- **architectural design:** underdesign, support for “unself-conscious culture of design”
- **teaching and learning:** teachers as facilitator, learning communities, courses-as-seeds (→ self-application)
- **informed participation:** beyond access, social creativity (→ Envisionment and Discovery Collaboratory)

Meta-Design: Transforming Application Areas — Continued

- **open source:** a success model of decentralized, collaborative, evolutionary development

- **living organizational memories and digital libraries:** living organizational memories such as Web2Gether

- **interactive art:** collaboration, co-creation, puts the tools rather than the object of design in the hands of users

- **politics:**
 - what can we learn from politics about meta-design?
 - is meta-design an interesting and valuable framework for politics?

Herbert Simon: “Sciences of the Artificial”

- **big success examples of meta-design / underdesign**
 - the American constitution
 - Cities

- **Society as the Client** — “the members of an organization or a society for whom plans are made are not passive instruments, but are themselves designers who are seeking to use the systems to further their own goals”

- **how do we want to leave the world for the next generation? → desiderata:**
 - a world offering as many alternatives as possible to future decision makers, avoiding irreversible commitments they cannot undo
 - to leave the next generation of decision makers with a better body of knowledge and a greater capacity for experience
 - essential task: to keep open the options for the future or perhaps even to broaden a bit by creating new variety and new niches

The United States Constitution

seed	evolutionary growth	reseeding
1787	1791: Bill of Rights 10 amendments 1791-2009: 17 amendments	amendments to the U.S. constitution are appended to the existing body of the text without altering or removing what already exists

- **amendment process (part of the seed)** — the authors of the Constitution
 - were clearly aware changes would be necessary from time to time if the Constitution was to endure and cope with the effects of the anticipated growth of the nation
 - were also conscious that such change should not be easy, lest it permit ill-conceived and hastily passed amendment

Quotations on the Jefferson Memorial

I am not an advocate for **frequent and untried changes** in laws and constitutions.

But laws and institutions must go hand in hand with the progress of the human mind. As that becomes more developed, more enlightened, as new discoveries are made, new truths disclosed, and manners and opinions change with the change of circumstances, **institutions must advance also, and keep pace with the times.**

We might as well require a man to wear still the same coat which fitted him when a boy, as civilized society to remain ever under the regimen of their barbarous ancestors.

to Samuel Kercheval, July 12, 1810