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UNIVERSITÄT
MÜNCHEN

LFE Medieninformatik • Elian Schweizer

Creativity support tool for early design phases

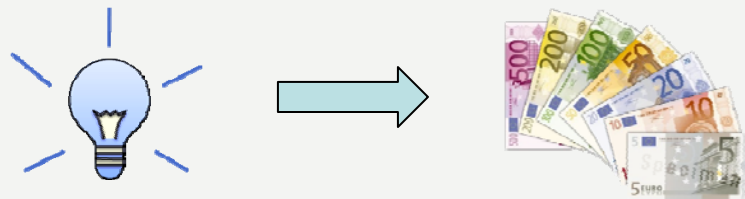
Medieninformatik Oberseminar
InauguralLecture
Summer Term 2009





Task

- Innovation is the key to economical growth (Angela Merkel)
- Creativity is basic for innovation



- Creativity support is in demand
 - hundreds of techniques: brainstorming, devils advocat ...
 - hundreds of tools: paper, boards, computer ...
- Task of the thesis:
Development of a computer based creativity-tool for early design phases



Content

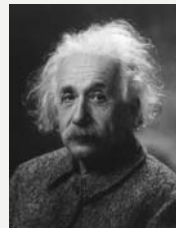
1. Creativity: definition, process and groups
2. Support-Tools
3. Concept of a new creativity support tool



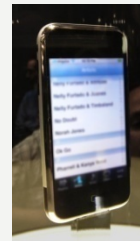
Creativity

- What is creative?

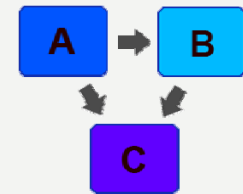
A person



A product



A process



- What is creativity? (Guilford)

Divergence



Different ideas

Originality



Uncommon ideas

Elaboration



New aspects upon an idea

Fotos: commons.wikimedia.org



Creativity in groups

- Creativity is often achieved in groups



Some pros

- Share knowledge
- more divergent thinking
- Opening to news ideas



Some cons:

- Fear of evaluation
- Laziness
- Difficult concurrent communication

Creativity a process

- Creativity occurs not in a moment, it is a process
- Four steps (Wallas)
 1. Preparation: Collect facts
 2. Incubation: unconscious processing
 3. Illumination: Solution becomes conscious
 4. Examination: Testing and elaboration



- The steps can last from seconds up to months



The creativity process in groups

- Possible influences of groups on the process

1. Preparation: Share knowledge
2. Incubation: new impulses through different heuristics
3. Illumination: easier formulation of the answer
4. Examination: more direct evaluation



- Different workflows:

Serial: Ideas assemble successive

Parallel: Elements of the idea are developed separate

Simultaneous: The idea creation is concurrent



Operationalization

- The creative person
 - Motivation, knowledge, skills ...
- The task
 - Complexity, characteristics, dependencies
- The process
 - Tools, workflows, group compositions



Creativity support tools

- Communication Support:
 - Supports interaction, connects over great distances
 - Examples: Forum, Chat, Conference tools

c't Hilfe-Forum

Startseite > c't Hotline-Foren > c't Hilfe-Forum

Seite 1 2 3 4 ... 16 [Neuere](#) [Ältere](#) [Alles aufklappen](#) [Alles zuklappen](#) [Neues Thema](#)

<input type="checkbox"/> Probleme mit WLAN Verbindung	Jens Holzmüller	06.08.09 20:48
<input checked="" type="checkbox"/> Suchmaschinen entfernen (3)	rschwartz	06.08.09 19:31
<input checked="" type="checkbox"/> CPU Temp steigt, warum ? (3)	mocq	06.08.09 14:17
<input checked="" type="checkbox"/> ist Mainboard auch kaputt? (4)	r.u.	06.08.09 15:39
<input checked="" type="checkbox"/> Multifunktionsdrucker unter Linux (Tinte) (5)	josli	06.08.09 18:51
<input checked="" type="checkbox"/> LG GH22LP20 brennt nicht mehr (2)	barney8868	04.08.09 13:14
<input checked="" type="checkbox"/> Seagate FreeAgent XTreme 1TB, Klackgeräusche, defekt? (2)	hoz49	04.08.09 15:09
<input checked="" type="checkbox"/> Synchronisierung: Nur Geänderte und neue Dateien kopieren (3)	Phielo	04.08.09 21:49
<input checked="" type="checkbox"/> Ubuntu 9.04 restlos deinstallieren, Vista solo wiederherstellen (7)	Recum	03.08.09 21:11
<input checked="" type="checkbox"/> EMail-Account gesucht - darf auch was kosten (3)	chris2k	03.08.09 14:38
<input checked="" type="checkbox"/> Problem mit HP dv6000 (dv6357) Pavilion-Notebook (1)	mehh	01.08.09 17:46
<input checked="" type="checkbox"/> Standardmäßig plötzlich UNICODE-Darstellung. Westeuropäisch ISO geht nicht mehr (1)	JoPo	01.08.09 14:59
<input checked="" type="checkbox"/> was ist das für einen Datei: eogiau.exe (9)	Siegfried Anton	06.08.09 19:21
<input checked="" type="checkbox"/> Windows Start Manager ändern (3)	PC-Man	01.08.09 16:05
<input type="checkbox"/> Tasten remappen in Mac OS X	ook	30.07.09 21:05
<input checked="" type="checkbox"/> Windows Recovery CD verloren - CD Key ungültig (9)	HendrikD	31.07.09 22:05

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In Thread-Darstellung zeigen In Eingangsreihenfolge zeigen

Quelle:heise.de



Creativity support tools

- Repository orientated:
 - Organizes Information
 - Examples: Wikis, Search engines

The screenshot shows the German Wikipedia homepage. At the top left is the Wikipedia logo with the text 'WIKIPEDIA Die freie Enzyklopädie'. Below it is a search bar with 'Artikel' and 'Volltext' buttons. The main content area includes a 'Projektseite' tab, a 'Willkommen bei Wikipedia' section with a welcome message, a navigation menu with icons for 'Geographie', 'Geschichte', 'Gesellschaft', 'Kunst und Kultur', and 'Reli', and a link to 'Artikel nach Themen · Alphabetischer Index · Artikel'. Below this are sections for 'Wikipedia aktuell' (news), 'Artikel des Tages' (today's featured article), and 'In den Nachrichten' (recent news). The 'Artikel des Tages' section features a featured article about the 'British National Antarctic Expedition'.

Quelle:wikipedia.de



Creativity support tools

- Problem solving:
 - Creates Ideas, decision support, evaluation
- Artificial intelligence:
 - Solves problems, simulating the human brain
- Monitoring and Management:
 - Organizes work, different presentation tools



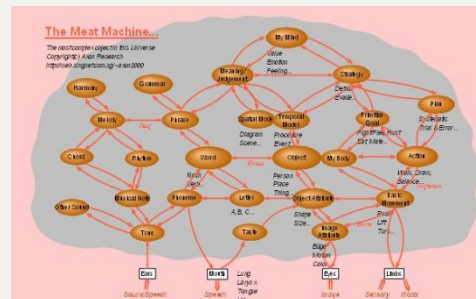
Creativity support tools

- Creativity heuristic support:
 - Cards, stimulation sets, disks
 - Computer based concept mapping, brainstorming tools

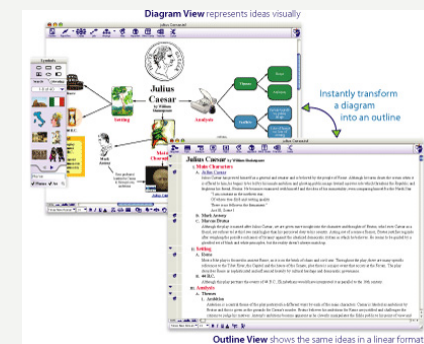
Ideenkoffer, Ideacoach, Braincards



Axon



Inspiration



Quellen: ideaktiv.eu, web.singnet.com.sg, inspiration.com



Creativity support tools

- Group creativity support
 - private and public workspace
 - Idea visualization and comparing
 - Easy dataaccess

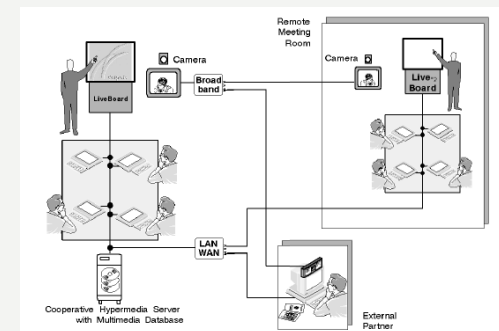
PSPD



I-Land



Dolphin

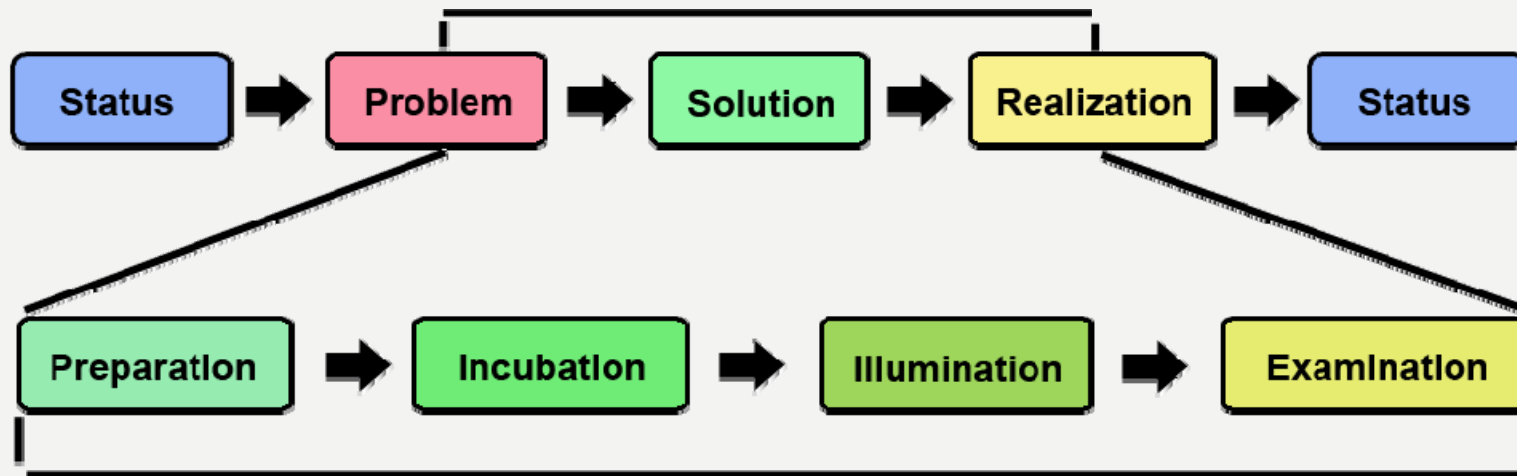


Quellen: Oneill, Iland, Dolphin



What's left?

- Integration of the creative process in one tool



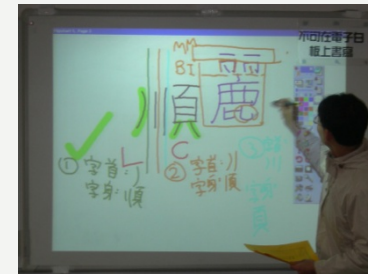
Main concept

- Support in three steps
 - Preparation
 - Incubation und Illumination
 - Examination

- Integration of widely applied tools
→ Paper and boards

- Data management

- Focus on the early design phase





Additional functions

- Process support:
 - all steps in one tool
 - ubiquitous
 - User- and data management
- Individual- and group support:
 - Rights management
 - Private and public workspace
 - Integration of external persons
- Interaction and cooperation support:
 - Discussion
 - Evaluation
 - Simple data integration



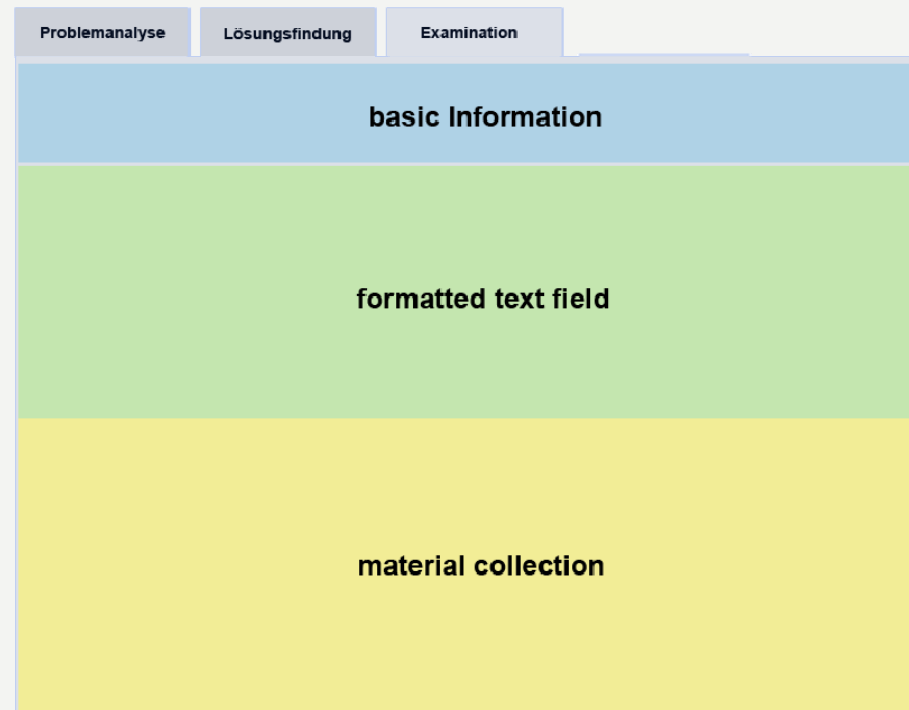
Preparation phase



- Challenge
 - problem organization
 - problem analyzing
 - information exchange
- Concept
 - basic problem characteristics
 - free formatted text field
 - material collection




Preparation phase





Preparation phase

Problemanalyse	Lösungsfindung	Examination
Allgemeine Informationen:		
Problem:	Creativity Tool Support in early Design Phases	Erstellungsdatum: 01.05.2008
Zuständiger:	Elian Schweizer	Letzte Änderung: 29.07.2009
Gewichtung:	Blocker	
Status:	Lösungsfindung	
Beschreibung:		
<p>01.05.2008, Bettina Conradi: Being creative is not easy for everybody. Several creativity techniques (such as brainstorming) help people in organizing their ideas and collaboratively developing new ones. This thesis should try to explore different creativity techniques and existing tool-support. Based on these findings a new tool for creativity support should be developed and evaluated against traditional paper-based methods (e.g. concept sketching).</p> <p>05.08.2009, Elian Schweizer: Ich hab das Problem mal etwas weiter analysiert und bin zu folgenden Schlussfolgerungen gekommen: Das Werkzeug sollte folgende Eigenschaften erfüllen: * Low threshold, high ceiling, and wide walls * Unterstützung von Gruppen und Einzelpersonen. Ubiquitous * Unterstützung des ganzen Prozesses: Problemanalyse, Lösungsfindung, Vergleich und Sharing * Lösungsfindung als eigener Prozess: Vorbereitung, Inkubation, Illumination, Examination</p> <p>Ich hab noch paar Bilder mit relevanten Modellen drangehängt, sowie Links zu allgemeinen Grundlagen.</p>		
Material:		
<p>Informations-Texte: (anklicken für ganzen Text)</p> <ul style="list-style-type: none"> * Design Prinzipien für Creativity Support Tools * Zusammenfassung ähnlicher Produkte * Definitionen von Kreativität 		
<p>Bilder: (anklicken zum Vergrößern)</p> 		
<p>Links: (anklicken zum Öffnen in neuem Fenster)</p> <ul style="list-style-type: none"> * Defining Creativity, Ben Schneiderman, 2008 * Beschreibung des I-Land * Webseite des W3 Consortiums * Wikipedia Eintrag über CMS 		



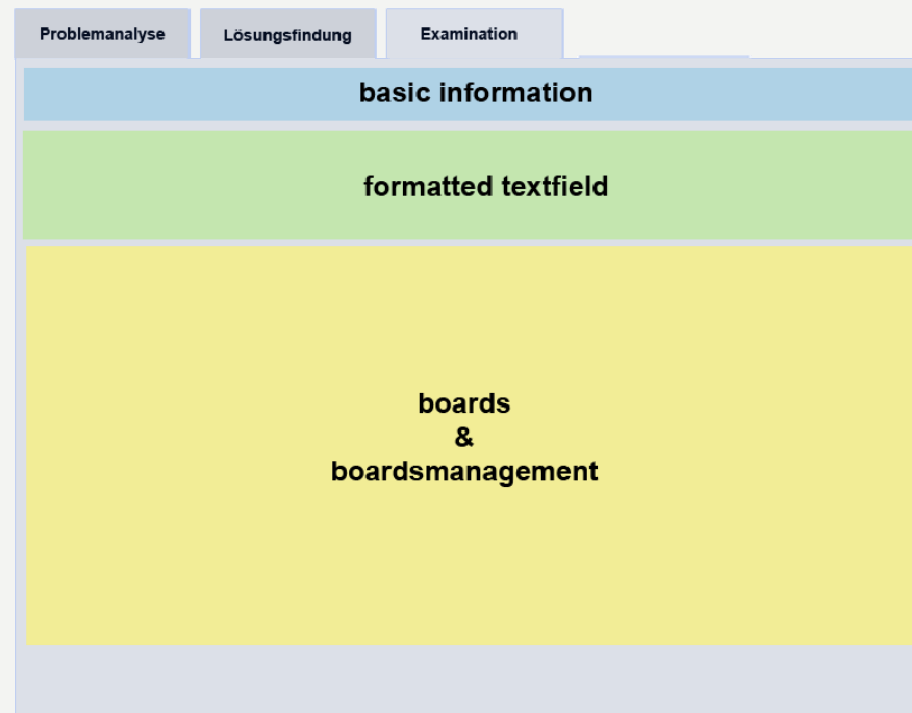
Incubation and illumination phase



- Challenge
 - create solutions
 - exchange solutions
- Concept
 - free formatted text field
 - boards/graphics for information exchange
 - board thumbnails and short description
 - import and export of boards
 - private copy and sharing function for boards
 - publication function for solutions



Incubation and illumination phase



Incubation and illumination phase

Problemanalyse
Lösungsfindung
Examination




Allgemeine Informationen:

Problem: Creativity Tool Support in early Design Phases Letzte Änderung: 29.07.2009

Lösungsansätze: speichern, veröffentlichen

Web Tool mit einfacher CMS, Problemtracking, integriertem Editor und Diskussionmöglichkeiten.

Boards: (anklicken zum Öffnen)

-  Ein Grundlegendes Modell des Kreativitätsprozesses
Öffentlich
erstellt am 10.07.2009
-  erster Interface Mockup
Öffentlich
erstellt am 18.07.2009
-  C-Board
Mockup des C-boards
Privat
erstellt am 28.07.2009

Veröffentlichen
 freigeben
 private Kopie erstellen
 Löschen
 Drucken

neues privates Board erstellen



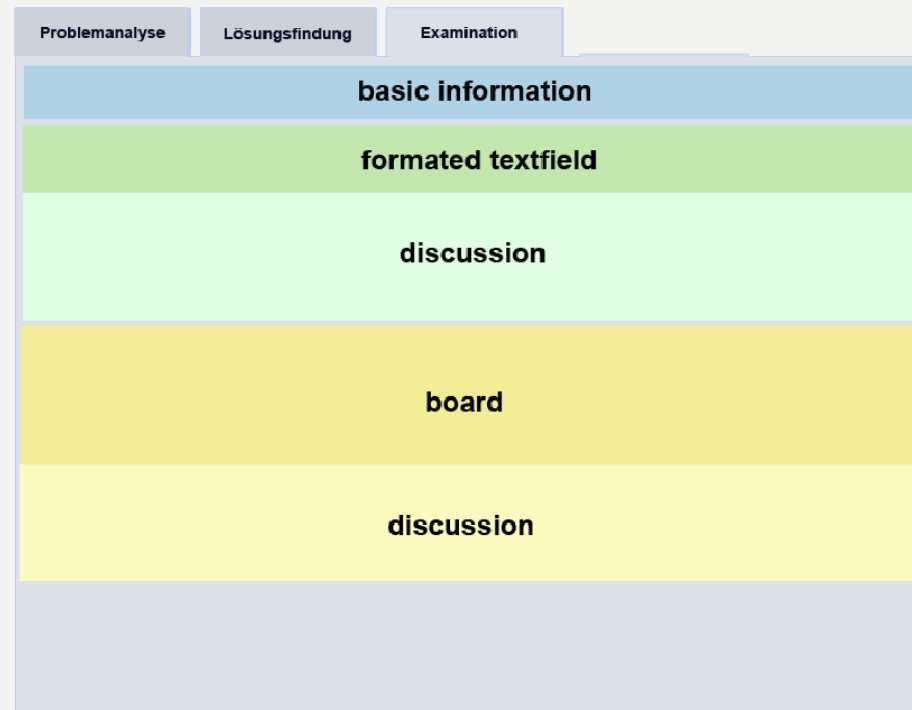
Examination phase



- Challenge
 - share and present solution
 - evaluate solution
- Concept
 - presentation of the solutions
 - discussion of the solutions



Examination phase





Examination phase

Problemanalyse
Lösungsfindung
Examination

Allgemeine Informationen:

Problem: Creativity Tool Support in early Design Phases Letzte Änderung: 29.07.2009

Lösung:

Web Tool mit einfachem CMS, Problemtracking, integriertem Editor und Diskussionmöglichkeiten.


04.08.2009 - Kommentar von Bettina Conradi:
Ich würde gerne noch den Prozess der Daten-Integration weiterausgebaut sehen. Wie wäre zum Beispiel ein direkter Datenaustausch von der Webcam?

05.08.2009 - Kommentar von Margaret Boden:
C-Board klingt nicht sehr gut, ein besserer Name muss her!

[neuen Kommentar verfassen](#)

Boards: (anklicken zum Öffnen)

C-Board



Mockup des C-boards

04.08.2009 - Kommentar von Bettina Conradi:
Sieht schon ganz gut aus.

[neuen Kommentar verfassen](#)



Thank you for your attention

Open topics:

- multiple solutions ?
- more connections between steps ?
- more features like issue list?