

Automated Assistance to Educators with Intelligent Agents

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Introduction and Background: The Situation

- Realtime Information Access Now Commonplace
 - High bandwidth connection common
 - Always online
- Hyperabundance of Data Occurring
 - 7 Billion webpages
 - 500 billion more in the “hidden web”
 - Sensor proliferation; massive communication data
- Information “float” disappearing
 - Time to digest/incorporate information reduced
 - Student expectations rising

Information Overload: So What?

- Too Much Information
 - Analysis becomes impossible
 - Shallow knowledge, depth ignored
- Increased Stress
 - Keeping up presents a challenge
 - Burnout common
- Dynamic nature of information
 - Requires constant revisits to websites
 - More worldwide contributors

Self-service Model

Introduction and Background: The (partial) Solution

- Intelligent Agent Technology has arrived
 - Automated software programs
 - Triggered automatically
 - Efficient, fast, readily available
- First Generation now in use
 - Find, filter, fuse information for users
 - Minimal learning
 - Automate many user functions
- Second Generation on the horizon
 - Proactive “learning”, smarter
 - Provide “context”, not just “content”
 - Just-in-Time, Just-the-right amount information providers

Room-service Model

Agent Examples

General Search	Copernic Agent
Specific Search (TV, Podcasts)	TV Eyes, Podscope
Desktop Search	Google, Copernic
Summarize Documents	Copernic Summarizer
Notify of New Information	Alerts, ENewsbar
Grade Papers	IEA, Intellimetric
Answer Questions/Assist	Blackboard Bot
Track Information	Copernic Tracker
Assist in writing essays	Watson
Tutor	AutoTutor, Maria

Agent Examples

Converse	SPLEAK, ActiveBuddy
Automate References	EndNote
Check for Plagiarism	EVE
Filter Information	Karnak
Provide misc information	TellMe (1-800-555-TELL)
Assist with Presentations	Sylvie, VoxProxy
Provide specific expertise	Synthetix Laser Eye
Build Resumes automatically	ZoomInfo
CRM	Creative Virtual
Shop	Dulance

Pros and Cons of Bots: Currently

- Pros
 - Automate many common functions
 - Free up user's time for more difficult tasks
 - Capture interactions (for data mining)
 - Many are inexpensive
- Cons
 - Limited “fusing” of data; mostly finding, some filtering
 - User expectations rising rapidly
 - No standards for data exchange
 - Interoperability limited

Future

- **Greater Intelligence in Agents**
 - More AI (neural networks, fuzzy logic, expert systems)
 - Automated learning
- **Easier to Develop**
 - User developed, improved, and maintained
- **Improved Anthropomorphic Features**
 - Speech, gestures, animation, facial expression, non-verbal communication
- **Agent Collaboration**
 - Agents talking to agents
 - Use of the Semantic Web to provide context

Futuristic Agent Examples

Context Sensitive Assistance	<u>Microsoft Notebook</u>
Agents that Learn	<u>PAL</u>
Automated Email Sorting	<u>IBM, UC Dublin</u>
Automated PR	<u>Sentiment</u>
Virtual Science Lab	<u>CyberLady</u>
Automated Process Planning	<u>Agentis Software</u>
Automated Software Distribution and Composition	<u>Swinburne University</u>
Specific answers	<u>Brainboost</u>
Context Sensitive Searches	<u>Blinkx</u> , <u>Information 360</u>