

**'Distant Learning' based on  
'Technological Restructuring' ;**  
introducing its Framework and Practice

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**Outline**

- 1. Emerging Needs for Distant Learning in Ubiquitous Society; its Possibilities and Problems**
- 2. Consideration from MOT viewpoint; to create learners 'Experience' and 'Intelligence' beyond 'supply push' and 'demand pull'**<sup>2</sup>

**Outline**

- 3. The Shape of Alternative 'Distant Learning' based on 'Technological Restructuring'**
- 4. Short Conclusion; for Sustainable Wisdom in our Future**

- 1. Emerging Needs for Distant Learning in Ubiquitous Society; its Possibilities and Problems**

### Distant Learning as a 'Business Chance'

Market Scale in Korea (2004)

**3,500,000,000 WON**

(by Korean Society of Cyber Education)

### Distant Learning as a Business Chance

Enlarging Market Scale in JAPAN

2003: 169,960,000,000YEN

2010: 648,350,000,000YEN  
(expected)

(from the data of Advanced Learning Infrastructure Consortium, Japan)

### 15 Technological Features of Today's Distant Learning

by Dr. Curtis J. Bonk ( Indiana University)

1. Computer Talks
2. Blogs
3. e-Books
4. Adventure Learning (RPG)
5. Diversity in Learning Objects
6. Virtual World / Virtual Reality
7. Wearable Tech

*(continue...)*

### 15 Technological Features of Today's Distant Learning

by Dr. Curtis J. Bonk ( Indiana University)

8. Wireless Technology
9. Tablet PC
10. Online Simulation
11. Collaborative Tools
12. LMS
13. Video Streaming
14. SETI standardization
15. Wikipedia

**Technological Features;  
Merits and Demerits**

From Business viewpoint

**Merits:**

- Using Ordinary Technologies  
→ easy to popularize  
= obtain a lot of users

**Demerits:**

- Difficult to get new 'de facto standard'  
→ only following=miss the Business Chance

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**Technological Features;  
Merits and Demerits**

From Academic Viewpoint

**Merits:**

- Formalization (Joint of some Modules)  
→ easy to introduce (like cooking recipe)

**Demerits:**

- Danger of Lacking 'Learners' viewpoint'  
→ difficult to use effectively  
→ difficult to measure its utility

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**What are the problems  
of Distant Learning?**

According to *e-Learning White Paper 2003/2004*, Japan

Difficulty in sustaining the motivation  
to continue learning (47.2%)

Lack of Interactivity between  
lecturers and learners (25.2%)

↓

problems concerning  
STATE of MIND of Learners

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**Question**

Are those formalized systems  
really useful  
for developing learners'  
**INTELLIGENCE**  
and  
**GOOD STATE OF MIND??**

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**What is the 'INTELLIGENCE'  
in Higher Education?**

**NOT**

Ability to MEMORIZE the existing  
DATA / INFORMATION

**BUT**

Ability to SET ONE'S OWN PROBLEM  
and  
to SOLVE IT BY HIMSELF

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Needs for Distant Learning System

Enhancing

**VOLUNTARY WILL TO LEARN**

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**Danger of ONLY Virtual or  
Distant Learning**

Disappointing Example:  
MIND CONTROL in AUM Shinrikyo (Religious Cult)

THESE ARE THE ONLY THINGS  
I CAN DO WITH MY MIND

Sarin Gas Attack in Tokyo Subway (1995)

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**Affinity between Media and Mind Control**

Many young intellectuals are fascinated  
by CULT with BODILY, DIRECT EXPERIENCE  
Using Audiovisual Media

THESE ARE THE ONLY THINGS  
I CAN DO WITH MY MIND

Image of AUM's Mind Control using Audio and Video

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**Danger of 'Lacking Body' in Education**  
Needs for notifying  
the **dangerous influence** of  
**Information Media,**  
not only **OBJECTIVELY**  
but **EXPERIENTIALLY**  
Our Practice from 2000~  
**Info-hygiene Education**  
in Information Processing Class

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**2. Consideration from Management of Technology viewpoint;**  
to create learners'  
'Experience' and 'Intelligence'  
beyond 'supply push',  
and  
'demand pull'

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**Innovation in Distant Learning**  
Which is more appreciate  
'supply push' based  
or  
'demand pull' based  
?

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**How about 'Supply Push' Innovation ?**  
**Rigid 'Dominant Design'**  
(e.g. 15 Technological Features)  
Easy to **INTRODUCE**  
↑↓  
Difficult to **CHANGE**  
↓↑  
Difficult to **REFLECT LERNERS' VOICE**  
Lack of  
**FLEXIBILITY**

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## How about 'Demand Pull' Innovation ?

Demand with No Ambition  
( e.g. ruined Faculty Development in Univ.)

↓  
Decline of Appropriate  
Distant Learning Environment

↓  
Decline of Learners  
INTELLIGENCE

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Needs for  
**Alternative Innovation Model**  
beyond  
**'Supply Push'**  
and  
**'Demand Pull'**

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## 'Experience Innovation'

C. K. Praharad,  
University of Michigan Business School,  
2003

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## 'Experience Innovation'

Focus of Innovation:

Each **User's Experience = Acceptance**

Experience Environment:

**Network** composed by various **Enterprises**  
and  
**User-Communities**

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**'Co-Creation' of Value**  
(Prahalad)

**Value Creation:**  
Users' Participation  
to the Experience Environment

↓

**'Co-Creation'**

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Possibility of  
**Alternative Distant Learning**  
from  
**'Experience Innovation'**  
&  
**'Co-Creation of Value'**  
viewpoint

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3. The Shape of  
**Alternative 'Distant Learning'**  
based on  
**'Technological Restructuring'**

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**What is**  
**'Technological Restructuring'?**

↓

Not  
**Ordinary 'Restructuring'**  
(IT usage for stuff reduction & cost cutting)

But  
**'Re-structuring' of**  
**Human Intelligence**  
using latest information technology

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### What is the 'Value' in Distant Learning?

...Experience directed to Intelligence  
(NOT replacement of real classroom)

Technology:  
FACILITATOR of Learning Experience



Needs for  
'Co-Creative'

Technological Restructuring

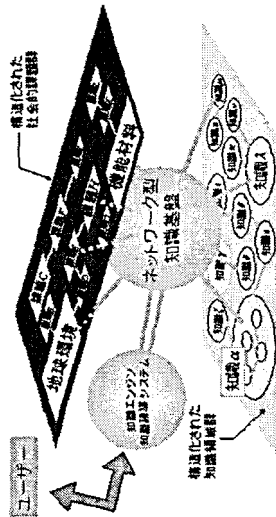
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Practice in Tokyo University (1)

Techno-Restructuring  
using  
On-demand  
Knowledge Generation Engine

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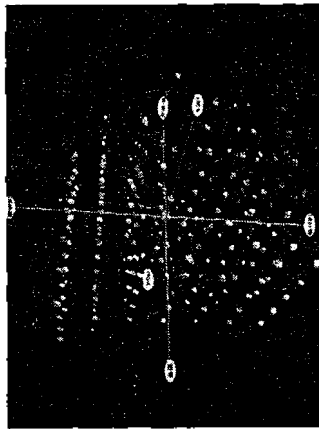
### 'Science Creation' Project (2001-2005)



Public Research Park  
On-demand Networked Knowledge base

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### Education Systems Project in School of Engineering



On-demand  
Curriculum Generation System



- Core Technologies:**
- Natural Language Processing (NLP)
  - 3D Visualization

It is NOT 'Simple Demand Pull' System



**Realtime 'Tailor-made' Knowledge Generator**

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**Technology (NLP&3D):  
Facilitator to get Plural Solutions**  
(Selection: Role of Human)

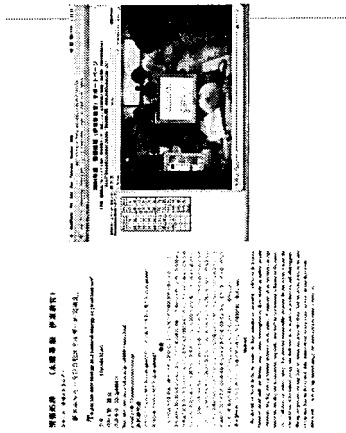
**Heuristic Engine**



**Importance of  
'Serendipity'**

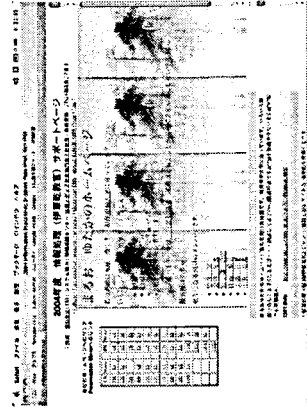
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Practice in Tokyo University (2)  
**'Graduation Thesis' style report**  
in Information Processing Class for Freshmen(2000-)



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**Information Processing Class  
is NOT a School for Microsoft Office!**



**Real & Virtual Class  
To Cultivate Learners' ability  
to produce 'Intelligence' from indifferent data**

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**Why 'Graduation Thesis' style report?**

Lesson to  
**SET ONE'S OWN PROBLEM**  
 and  
**to SOLVE IT BY HIMSELF**

Developing  
 'Bird's eye View'  
 over the Ocean of Knowledge

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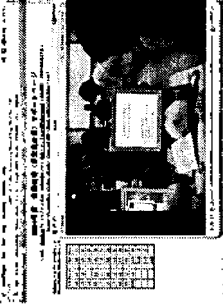
**Why in Information Processing Class?**

Importance of Discussions with others;  
 IT based discussion field (BBS, Blog)

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**Why in Information Processing Class?**

Importance of PRESENTATION ABILITY  
 Using Video Streaming for their own Presentations



Expression of Intelligence

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**Manufacturing of Existing Technologies**

**Generation of New Learning Experience**

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Practice in Tokyo University (3)  
**'Info-Hygiene' Education**  
 in Information Processing Class for Freshmen(2000-)

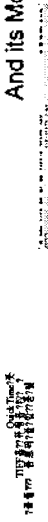
1995: AUM Gas Attack  
 Mind Control using AV Media and Drugs



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**2005: Broadband Internet  
 UBIQUITOUS SOCIETY**  
 ⇒ Ubiquitous State of MIND CONTROL  
 And MIND CYBER TERRORISM

AUM's Streaming Site  
 And its Movie

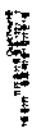


AV Streaming  
 by Terrorist Group

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**What can we do  
 in Higher Education?**

**'Info-Hygiene' Education:  
 Prescription for our Mind  
 in Inevitable Info-Disaster**




**Education as an 'Info-Vaccine'**

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**'Info-Hygiene' Education**  
 in Information Processing Class for Freshmen(2000-)

**'Emotion and Action precedes awareness'**



**Objective Knowledge based on  
 Cognitive Neuroscience**

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● 3115 ● 3121 ● 3122 ● 3123 ● 3124 ● 3125 ● 3126 ● 3127 ● 3128 ● 3129 ● 3130 ● 3131 ● 3132 ● 3133 ● 3134 ● 3135 ● 3136 ● 3137 ● 3138 ● 3139 ● 3140 ● 3141 ● 3142 ● 3143 ● 3144 ● 3145 ● 3146 ● 3147 ● 3148 ● 3149 ● 3150 ● 3151 ● 3152 ● 3153 ● 3154 ● 3155 ● 3156 ● 3157 ● 3158 ● 3159 ● 3160 ● 3161 ● 3162 ● 3163 ● 3164 ● 3165 ● 3166 ● 3167 ● 3168 ● 3169 ● 3170 ● 3171 ● 3172 ● 3173 ● 3174 ● 3175 ● 3176 ● 3177 ● 3178 ● 3179 ● 3180 ● 3181 ● 3182 ● 3183 ● 3184 ● 3185 ● 3186 ● 3187 ● 3188 ● 3189 ● 3190 ● 3191 ● 3192 ● 3193 ● 3194 ● 3195 ● 3196 ● 3197 ● 3198 ● 3199 ● 3200

**'Info-Hygiene' Education**  
 in Information Processing Class for Freshmen(2000-)

● 211 ● 212 ● 213 ● 214 ● 215 ● 216 ● 217 ● 218 ● 219 ● 220 ● 221 ● 222 ● 223 ● 224 ● 225 ● 226 ● 227 ● 228 ● 229 ● 230 ● 231 ● 232 ● 233 ● 234 ● 235 ● 236 ● 237 ● 238 ● 239 ● 240 ● 241 ● 242 ● 243 ● 244 ● 245 ● 246 ● 247 ● 248 ● 249 ● 250 ● 251 ● 252 ● 253 ● 254 ● 255 ● 256 ● 257 ● 258 ● 259 ● 260 ● 261 ● 262 ● 263 ● 264 ● 265 ● 266 ● 267 ● 268 ● 269 ● 270 ● 271 ● 272 ● 273 ● 274 ● 275 ● 276 ● 277 ● 278 ● 279 ● 280 ● 281 ● 282 ● 283 ● 284 ● 285 ● 286 ● 287 ● 288 ● 289 ● 290 ● 291 ● 292 ● 293 ● 294 ● 295 ● 296 ● 297 ● 298 ● 299 ● 300

**'Our Behavior is Controlled**  
 by Unconscious Process'

● 311 ● 312 ● 313 ● 314 ● 315 ● 316 ● 317 ● 318 ● 319 ● 320 ● 321 ● 322 ● 323 ● 324 ● 325 ● 326 ● 327 ● 328 ● 329 ● 330 ● 331 ● 332 ● 333 ● 334 ● 335 ● 336 ● 337 ● 338 ● 339 ● 340 ● 341 ● 342 ● 343 ● 344 ● 345 ● 346 ● 347 ● 348 ● 349 ● 350 ● 351 ● 352 ● 353 ● 354 ● 355 ● 356 ● 357 ● 358 ● 359 ● 360 ● 361 ● 362 ● 363 ● 364 ● 365 ● 366 ● 367 ● 368 ● 369 ● 370 ● 371 ● 372 ● 373 ● 374 ● 375 ● 376 ● 377 ● 378 ● 379 ● 380 ● 381 ● 382 ● 383 ● 384 ● 385 ● 386 ● 387 ● 388 ● 389 ● 390 ● 391 ● 392 ● 393 ● 394 ● 395 ● 396 ● 397 ● 398 ● 399 ● 400

Education using **Modified STROOP TASK**

Importance of Objective Knowledge  
 With Concrete Experience

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Step 1

green blue blue  
 yellow yellow yellow  
 green yellow blue

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Step 2

● ● ●  
 ● ● ●  
 ● ● ●

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Step 3

yellow red blue  
 yellow green red  
 blue red blue

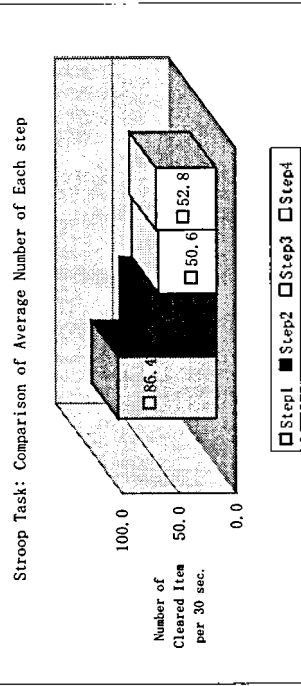
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### Step 4

● green ● red ● red ● green  
● green ● red ● green  
● blue ● yellow ● yellow

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### Difficulty of Self Control; -We don't know what 'SELF' is-



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Role of  
Academic Sector



Developing

Critical Thinking

toward

Media (incl. Distant Learning)

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4. Short Conclusion:  
for Sustainable Wisdom  
in our Future

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**1. Distant Learning for 'INTELLIGENCE'**  
With Latest Technologies

**'Realtime Tailor made' System**  
for  
**Self Orientation**

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**2. Distant Learning for 'INTELLIGENCE'**  
With Restructuring of  
Existing Technologies

**Synergic Restructuring**  
for  
**VOLUNTARY WILL TO LEARN**

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**3. Critical Viewpoint**  
to Media Environment

**'Info-Hygiene' Education**  
for  
**Sustainable Mental Health**  
In Ubiquitous Society

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**Toward fruitful future of**  
**Distant Learning**  
**Both in Academy and Industry**

With  
**Technological**  
**Restructuring**

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**Thank You Very Much  
for your Kind Listening**

About More Detail,  
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