University of Gdansk, Poland  
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Debate  
"Natural Science and Creation of Human"

BALANCED artistic feelings (ARTS)  
and scientific mind (SCIENCES)  
within our modern Life and Education

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My recent fields of research and development

SYSTEMS THEORY (Φ & Ψ)  
(systems thinking)

SYSTEMEOLOGY OF EDUCATION

SYSTEMEOLOGY OF GENERAL PHYSICS EDUCATION

Ontodidactics of Physics  
General Physics Education e-technologies

PRACTICE
Discussing educational creation of modern HUMAN by means of balanced development of his/her artistic and scientific spiritual abilities (FEELINGS and MIND),

there are three main aspects selected:

**HUMAN** (what does it mean “human” today, artistic and scientific reflection of sensed world within human’s world of thoughts)

**HUMAN’S LIFE and EDUCATION** (what does it mean “education” today and what education for what life in our future?)

**HUMAN’S SYSTEMS THINKING** (what does it mean “systemic” reflection of sensed world within homo sapiens consciousness?)
Human – body and spirit

*Homo sapiens* conscious (artistic and scientific) reflection of sensed world and following purposeful actions as conscious materialization of corresponding images and concepts.

**Arts** - images, emotional expression of thoughts - **FEELINGS**

**Sciences** – concepts, rational expression of thoughts - **MIND**

**EDUCATION** as educational activity - it is specially organized gaining of **LIFE EXPERIENCE FOR LIFE**

General and Professional Education

**Didactics** (content of education)

**Pedagogy** (methods of education)

**LIFE EXPERIENCE** (theory)

- Knowledge
- Values
- Skills

- Cognition
- Consideration
- Behaviour

**LIFE** (practice)
What General Education for what life?

What education for what life?

<table>
<thead>
<tr>
<th>EDUCATION</th>
<th>MIND (concepts, comprehension)</th>
<th>FEELINGS (images, imagination)</th>
<th>WILL (needs, resources)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCIENTIFIC</td>
<td>Fundamental and applied research</td>
<td>Inspiration</td>
<td>Pragmatic creativity</td>
</tr>
<tr>
<td>ARTISTIC</td>
<td>Service, control, exploitation of our modern life medium</td>
<td>Enjoyment</td>
<td>Everyday use of artistic and scientific achievements</td>
</tr>
<tr>
<td>PRAGMATIC</td>
<td>Existence (consumer’s life)</td>
<td></td>
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</tbody>
</table>
Systemic organization and action of human’s consciousness

**Thinking** – spiritual process as systemic processing of information within human’s brain

**Human’s world of thoughts**

World – human’s life medium

- Excitation of thoughts
- Materialization of artistic and/or scientific thoughts

Reflection of sensed world in human’s consciousness – it means building systems of thoughts, it is systems thinking process as fundamental way of human’s conscious spiritual life.

There are artistic and scientific thought systems within human’s consciousness

Multilevel or hierarchical structure of systems

- Synthesis
- Comparison
- Analysis

Arrangement – indicator of order and disorder balance in a system
Let us work for better life and education in our future!

Let’s make our future life better!
Let’s make better education for better future life!
Let’s make better people for their better future life!

TRADITIONS INNOVATIONS TIME
Past Present Future

Good luck to all of us!

LIFE EXPERIENCE:
knowledge, values, skills -
for LIFE:
cognition, consideration, behaviour!

Thank you for your attention!

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Some additional material follows!

Selected schemas – maps of thoughts from my articles – available in my blog:

http://blogi.lu.lv/broks/

General structure of human’s life experience

Result of education is a set of person’s knowledge, skills and attitudes [Latvia’s law of education, 1998]

Educational process involves learning/teaching and upbringing activities [Latvia’s law of education, 1998]

- **Knowledge** (What is this?)
- **Skills** (How to do this?)
- **Attitudes** (Why to do this?)
Detailed structure of purposeful human actions

Purposeful human action

COGNITION
- Comprehension and description
- Understanding and coding of sensations

CONSIDERATION
- Valuation
- Decision making
- Goal defining

BEHAVIOR
- Planning
- Providing resources
- Execution

The principal core structure of humans’ education - life experience (knowledge, attitudes, skills) for life (cognition, consideration, behavior)

<table>
<thead>
<tr>
<th>COGNITION (sensations, coding, description)</th>
<th>CONSIDERATION (valuation, goal defining, decision making)</th>
<th>BEHAVIOR (planning, providing resources, execution)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SKILLS - realization of abilities</td>
<td>Skills of gaining information and its’ analysis and synthesis</td>
<td>Skills of planning, providing resources and execution</td>
</tr>
<tr>
<td>ATTITUDES - value orientation</td>
<td>Cognition of values (creation of sample values - what is good?)</td>
<td>Development of attitudes</td>
</tr>
<tr>
<td>KNOWLEDGE - facts and causality</td>
<td>Obtaining knowledge (what is it and why is it so?)</td>
<td>Processing of knowledge (critical thinking)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Use of knowledge in practice</td>
</tr>
</tbody>
</table>
## Balanced development of human’s conscious spirit

<table>
<thead>
<tr>
<th>FEELINGS (images - artistic way of thinking)</th>
<th>MIND (concepts - scientific way of thinking)</th>
<th>WILL (evaluation of the usefulness of given images and concepts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pragmatic people *</td>
<td>*</td>
<td>Materialization</td>
</tr>
<tr>
<td>Scientific people *</td>
<td>Conceptualization *</td>
<td>*</td>
</tr>
<tr>
<td>Artistic people Imagination</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>ARTS</td>
<td>SCIENCE</td>
<td>ECONOMY</td>
</tr>
</tbody>
</table>

Self-sufficient and creative person today needs highly developed **system** of feelings, mind and will, usually with definite accent on appropriate group of personal properties.

## SYSTEMS THEORY – general theory of systems thinking:
all sensed phenomena are reflected in human’s consciousness as systems

**SYSTEMS** – it is selected by human from other phenomena definite phenomenon (body or process) as a set of interrelated (connected, joined) parts of this phenomenon. Human’s thinking means systems thinking - analysis, comparison and synthesis of thoughts as systems.

Any reflected phenomenon as corresponding thought is a **system**!
World of thoughts (artistic feelings, scientific concepts) – homo sapiens artistic and scientific systemic reflection of sensed material world – building systems of thoughts

Development of human FEELINGS - it means systemic development of imagination as artistic thinking, based on sensations when developing systems of images – from elementary up to high level image systems.

Development of human MIND - it means systemic development of conceptualization as scientific thinking, based on concepts when developing systems of concepts – from elementary up to high level concept systems

Systems of thoughts – * artistic (image based) systems * scientific (concept based) systems * pragmatic (will based) systems

Systems thinking – it’s universal or general form of human’s thinking, what is independent of concrete content of definite thinking process.

Systems theory – general theory of human’s thinking!

World of thoughts – it is SYSTEM of thoughts

THEORY

Consideration

Cognition

Behavior

PRACTICE

Systems thinking - reflection of real world by human’s selected parts, comparing and connecting them together in definite systems as a definite sets of these interrelated parts within definite outer medium (environment).