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Original Paper

KENOTOMY, Creativity Face to Face with Artificial Intelligence

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Abstract

Artificial Intelligence wins an increasing capacity for undertaking more efficiently repetitive jobs and routine based tasks, using highly accurate logic-adaptive and deductive algorithms, replacing successfully the humans for these occupations.

Facing this new reality the ultimate asset of mankind became the Creative Thinking.

Enhancing and fostering the Creative Thinking should be a major duty especially along the educational process. Whatever the domain of study might be, the ability of generating fresh ideas and disruptive concepts will be sooner than expected the winning trump, or even the only reason for employing a human operator.

What is Kenotomy?

Kenotomy is Creativity focused education, leading students toward a seminal thinking mode, by developing their genuine imagination talent and enabling them with the skills for shifting approaches, encouraging unusual thinking pathways, archetypal perspective and serendipity, facilitating conceptualizing and recognizing the potential of ideas.

Kenotomy is based on the integrative understanding of the creative mental processes and uses an adequate methodology for addressing them, triggering the ideation process.

Kenotomy builds up creative minds, whatever the major of the students might be.

How does Kenotomy work?

Kenotomy differentiates two types of Creativity: the Reactive and the Intrinsic one and describes the dedicated ways for initiating them specifically.

First of all Kenotomy relieves the acquired and inherent inhibitions, releasing and stimulating the inborn speculative talent and enhances the ideation ability, overcoming the empiric myopia by high abstracting skills and the routine saturation by a fresh apex-perspective.

As a project centered education Kenotomy develops individual disruptive thinking as well as the group synergetic resonance with spectacular outcome: original problem solutions and unexpected, seminal concepts.

Keywords

creativity focused education, culture of creativity, disruptive creativity, archetypal perspective, multiplatform society

1. Artificial Intelligence?

The public discourse is haunted for a while by a new syntagm: Artificial Intelligence, which would imply the existence of two kinds of intelligence, a natural one and a man-made counterpart.

This is the fall out of an anthropocentric approach, where it is assumed that intelligence belongs to the humans, being somehow a singular aptitude of mankind.

The Universe is not chaotic mess, but a sophisticated and well-balanced clockwork; it is impossible to deny the intelligence of this enormous evidence.

From this point of view, Intelligence is an abstract and universal regulatory framework, an intrinsic one, like the harmony behind the logic, mathematics and music, for example. Johannes Keppler analogy between music and planetary system, is a discrete nod of ubiquitary intelligence.

The Intelligence is self-sufficient and indivisible, therefore the term Intelligence excludes any attribute, like: human, artificial, personal, etc.

The Intelligence addresses different platforms, among them biological ones, for example the humans, but remains independent of them.

Intelligence is natural only, perhaps it is even the reason of the nature itself, but never “artificial”, which is an anthropocentric pretentiousness.

Under these coordinates the actual effort of simulating cognitive functions, with the goal of replicating the human mind and installing this on man made items, seems more like the intelligence is driving discretely this enterprise for conquering these new platforms too.

It is not flattering to feel yourself as the instrument of a largely superior entity, instead of being the master of the Universe, but the Sun is not orbiting around Earth either.

This different approach suggests a better definition of this actual mind-replicating project: Self-Adaptive Logic, instead of “artificial” Intelligence.

2. Intelligence and Disruptive Creativity

The attribute “adaptive” implies a higher level within Intelligence, far beyond the Consequent Logic, which is invariably and accurately following a predetermined, pattern, and a “hardwired algorithm” routine.

The Adaptive Logic means perceiving the need of change and being flexible enough for reacting properly, besides the ability of following routines, which might be often the main task.

Scrutinizing the term “adaptive”, we find two aspects: adaptability by flexibility, absorbing the event’s impacts, but remaining the same, and the adaptability by change, transforming itself incrementally as an effect of event’s impacts, this is the mechanism of evolution.

The Adaptive Logic is an intelligent survival strategy, supported by Reactive Creativity.

These are the main features sought out by the projects focused on Artificial General Intelligence, approximating the human bound intelligence.

As Kenotomy shows, the Reactive Creativity delivers a consequent, mainly predictable outcome, built on empiric facts and current knowledge.

Therefore the ultimate target of Mind Replicating projects is the rationally thinking and routine based (τέχνη) mindsetof theemployee of today, the average intelligence.

These routine focused minds seem to have no chance and a gloomy future, versus a faultless Adaptive Logic on a tireless inorganic platform the intelligence on biologic platforms. That is the nightmare scenario after the Singularity Point.

But just the imperfection of our biologic platform and the dual nature of our mind enables us to keep on with human ascendancy across the replicated intelligence on abiotic scaffolds, as they are supporting the random, subliminal Disruptive Creativity, the unexpected approaches, radically different concepts, which are changing the coordinates, inspiring new domains of activity and even new strategies of life.

As the Disruptive Creativity is not rooted in rational thinking and consciousness, Intelligence based models can’t aspire to compete with it, as they are burdened by a conceptual handicap.

Disruptive Creativity provides to the mankind’s a successful way out beyond the Singularity threshold.

3. Side-by-Side or Piggy Back

A world with parallel platforms of Intelligence, biologic and abiotic ones, might be quite different than the unipolar world of mankind intelligence monopoly.

The shared domain of intelligence might bring up competition, an unequal one, as already predicted by several grim scenarios of dystopia.

They are several approaches in defining the domain of Intelligence.

In our understanding the scope of intelligence is dominated by the logic and includes: (Table1: Scope of Intelligence).

Table 1. Scope of Intelligence

The reflexive logic	Aptitude of perceiving opportunities and identifying problems
The consequent logic	Capacity of following accurately routines
The reflective logic	Ability of evaluating alternatives, selecting the best and even

The logic driven adaptability	Consequent ideation on paradigmatic, pragmatic logic and axiological levels

So far extend the skills of Artificial General Intelligence, AGI, too, impersonating the scope of human cognitive functions, which are related to logic and raising the concern of inequitable competition by artificial platforms based intelligence.

In this perspective the dystopia scenarios of a mankind ancillary to intelligent items might be justified. Fortunately the human brain owns a binary nature, besides the neo-cortex rooted intelligence it has plenty of neuronal networks, which process emotional impulses and even deeper, ancestral instincts. These intrinsic impulses affect the logic clockwork of neo-cortex, stimulating unexpected insights, and disruptive approaches and inspire unforeseen concepts.

As a result, the disruptive thinking is a unique feature of mankind, which might hinder the accurate logic and disturbs the mindfulness, but triggers the outbreak of routine and incremental adaptive behavior.

Disruptive creativity is beyond intelligence; it creates the real difference and outruns the step-by-step pathway of it. The goal of intelligence is the perfection, but perfection is an asymptotic dead-end street. Different is better than perfection, as it is outlining a steadily moving horizon.

AGI might beat the human based intelligence in every domain of logic, as well as in memorizing accuracy and capacity, but will need to look up to mankind for new approaches and out of the box concepts, which could be generated by the eccentric human brain only.

Under these circumstances it is the actual duty of humanity to shift the focus of education toward creativity, fostering the seminal thinking modes and setting disruptive thinking as the main goal of education by Kenotomy.

4. Kenotomy, Creativity Focused Education

Creativity is generally perceived as a magic aptitude, a random inspiration or is fully mistaken with improving and adapting, the logic upgrading of state of the art, which is a cognitive process.

Creativity deserves a better understanding and a strong focus, as it is the particular asset of mankind and the only one, which will preserve the human supremacy after the singularity point, when the handicap across the non-biologic based intelligence will arise.

Triggering and surging Ideation, better said, the original mental outcome by creativity is the synergetic effect of the interaction between the cognitive, logic-deductive mind functions and the subliminal: emotional and instinctual impulses.

Therefore *Creativity is* the *brand of mankind*, as it integrates the unique, binary nature of the human brain.

Left alone, without subliminal or extrinsic impulses, or trained unilaterally the neo-cortex delivers quite accurate logic routines, even adaptive routines, and therefore expected outcome. This is the

logic-deductive mind segment, supposed to be replicated by the algorithmic AGI effort. But the human brain is and can do much more, overcoming the logic routine by disruptive, creative thinking.

Kenotomy is explaining, exploiting and developing this unique feature of human mind and facilitates the resulting original outcome, the ideas.

Emotional, instinctual or mixed impulses interfere with the regular neo-cortex operation distracting and disrupting it, triggering *seminal thinking modes* and generating unusual, unexpected outcome, like: reveries, phantasies, daydreams, unusual solutions, concepts and even unprecedented approaches. In this case the mind operates in a subliminal-inductive mode, leaving established pathways for generating newness.

The seminal thinking modes (Figure 1) are the effect of joint work of binary nature of human mind with both: cognitive and instinct-emotional features, each seminal thinking mode corresponding to a dedicated dyad.

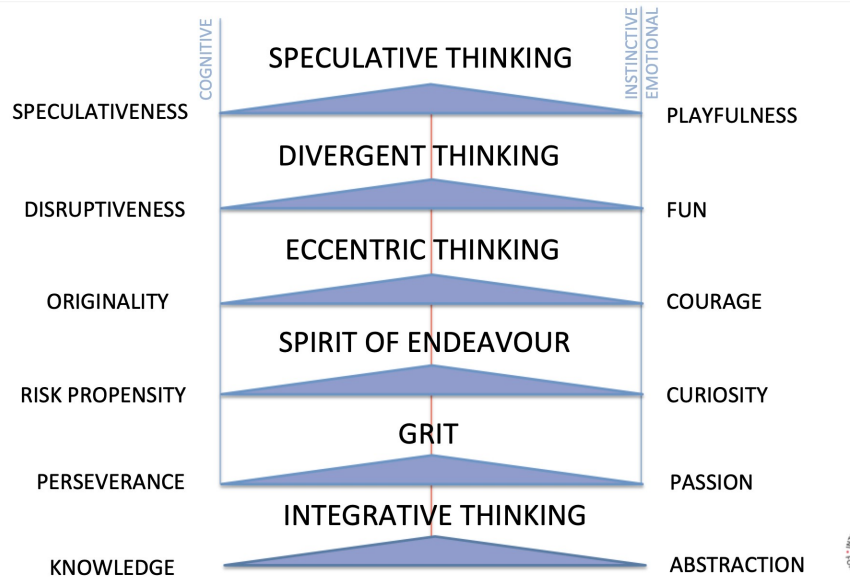

Figure1. Correspondence between Seminal Thinking Modes and Dyads

A creative mind needs the harmonious development of both kinds of features: cognitive and instinct-emotional features as they are supporting and triggering the *seminal thinking modes.*

This desiderate is intrinsic to human, inborn, as children provide evidence of most of the required features for creativity: playfulness, fun, courage, curiosity, passion, speculativeness, disruptiveness, originality and risk propensity.

Creativity is an innate, but inhibited, human ability and is based on the binary nature of human mind, expressed by the Kenotomy's *dyadic concept* of Seminal Thinking Modes.

By children the only missing features, for being accomplished inventors, are: perseverance, knowledge and abstraction. The mankind minds filling this gap by an education focused on: Memorized

Knowledge, Rigorous Logic Patterns and Convergent Thinking (Figure1), a strategy conceived in XVIII century, as the upcoming bureaucratic-industrial time required a large amount of disciplined routine workers with a solid memory and rigorous logic-deductive minds, for following dedicated pathways.

This educational focus was well meant, but is counterproductive for creativity and questionable in a face-to-face competition with AGI.

The inhibitory effect of this educational concept on creativity becomes evident in Figure 2:

-Memorizing Capacity, is getting irrelevant, as the real time access to Global Cloud Memory is available everywhere already, and sustains *routine* and *empirical myopia*, which are severe inhibitors of seminal thinking modes.

-The Convergent Thinking is inducing *compulsory focus* and fosters a specific inhibitor: *empirical myopia*

-Developing Rigorous Logic Patterns has the fall out of the inhibitors *routine* and *compulsory focus*.

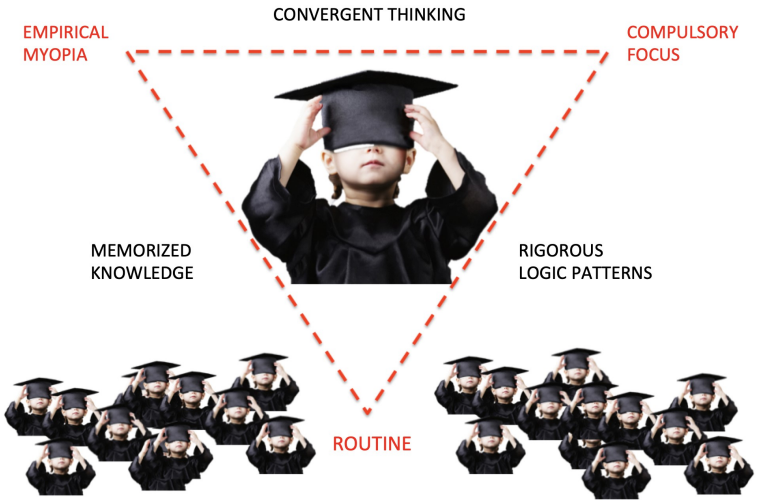

Figure 2. Inhibitors from Actual Education Startegy of Seminal Thinking Modes

The extent of damage of this educational strategy on the genuine creative capacity of children has been already revealed by a long-term survey, made on behalf of NASA by G. Land and Jarman. The survey quantifieda 85 % loss of creative capacity of the same children between the ages of 5 and 18 years. A recent neuroscience conclusion is convergent to this observation, finding that children by the age of 5 have 10 times more synapses than at the adulthood (18 years old), even if the number of neurons stabilizes at 80-90 billions. It has a dramatic pruning effect on synapses, this is afact.

What happens to all the children between the ages of 5 and 18, what is reducing so strikingly their creative capacity and even mutilates the biologic support of it?

The answer is obvious; the entire young generation goes through the educational system, based on: Memorized Knowledge, Rigorous Logic Patterns and Convergent Thinking, meant to develop the

Knowledge, Focus and established Logic patterns, standard routine workers, the *KFL strategy*.

This means, that the actual KFL strategy of education is trading the genuine creative capacity, which is the vantage asset of mankind across the AGI for developing the cognitive and memory features, which are the trump of AGI across the mankind. This is obvious a counterproductive approach. This sounds as absurd as it is, but it is another fact.

Seminal Thinking modes and their inhibitors

KFL is systematically inhibiting the seminal thinking modes, and doing so it is sending a signal for a major shifting of education focus worldwide (Table 2).

Table 2. Seminal Thinking Modes and Corresponding Inhibitions

Seminal Thinking Modes	Inhibitions
Integrative Thinking, the Big Picture	Empiric Myopia
Speculative Thinking	Compliance to conformity (routine)
Divergent Thinking	Compulsory Focus (close thought)
Eccentric Thinking	Fear of Making Mistakes
Spirit of Endeavour	Fear of Unknown
Grit	Reluctance

Until the monumental task of reorienting the educational strategy worldwide will have any noticeable results, the need for a strongly creative young generation will grow.

The *singularity point* is sensibly forecasted for 2040. This sounds very optimistic, as the quantic paradigm has been reached by Google research already in September 2019.

These facts set the priority for Kenotomy in restoring a good part of the young people's creative capacity by contributing sekience the induced and inherent inhibitions.

Relieving inhibitions of the Seminal Thinking Modes

The main task of Kentomy' educational curricula is: fostering and developing the features of a creative mind (Table 3).

Table 3. Mind features and Creativity Related Abilities

Mind Features	Abilities
Mental Elasticity	Shifting Approaches
Eccentric Thinking	Disruptive Approaches
Archetypal Perspective	High Abstraction Skills
Ideation	Speculative Thinking
Integrative Thinking	Conceptualizing
Ideas Management	Taxonomy of Ideas

A special curricular role has the capacity of dealing with ideas, Ideas Management.

Kenotomy, Pedagogic Goal:

The Education based on Kenotomy stimulates original thinking minds, animates disruptive problem solvers and business pioneers for sustaining the human primacy in the upcoming context, where the routine tasks and regular occupations will be taken over by Artificial General Intelligence. As such Kenotomy has a key role to play in a new educational strategy, focused on Creativity Kenotomy is enabling the students to use creatively the acquired knowledge for generating new concepts and approaches, thereby extending the cognition's frontier.

Tasks of Curriculum:

Mental Elasticity (shifting approaches)

It is essential, to relieve inherent and acquired inhibitions, which are hampering and even discouraging the natural, disruptive creative process. As the main Inhibitions are Empirical Myopia; Routine and Compulsory Focus the Kenotomy training is focused on them:

Table 4. Remedial Methods of Extant Inhibitions

INHIBITION	REMEDIAL METHOD
Empirical Myopia	See with your mind-Abstracting skills
Routine	See with fresh Eyes- Changing several points of view
Compulsory Focus	Divergent, random addressing topics

Archetypal Perspective (high abstraction skills)

Developing the capacity for abstracting until the Archetypal Horizon, identifying the corresponding Archetype to topic, as in the kenotomial Cascade (Figure 3).

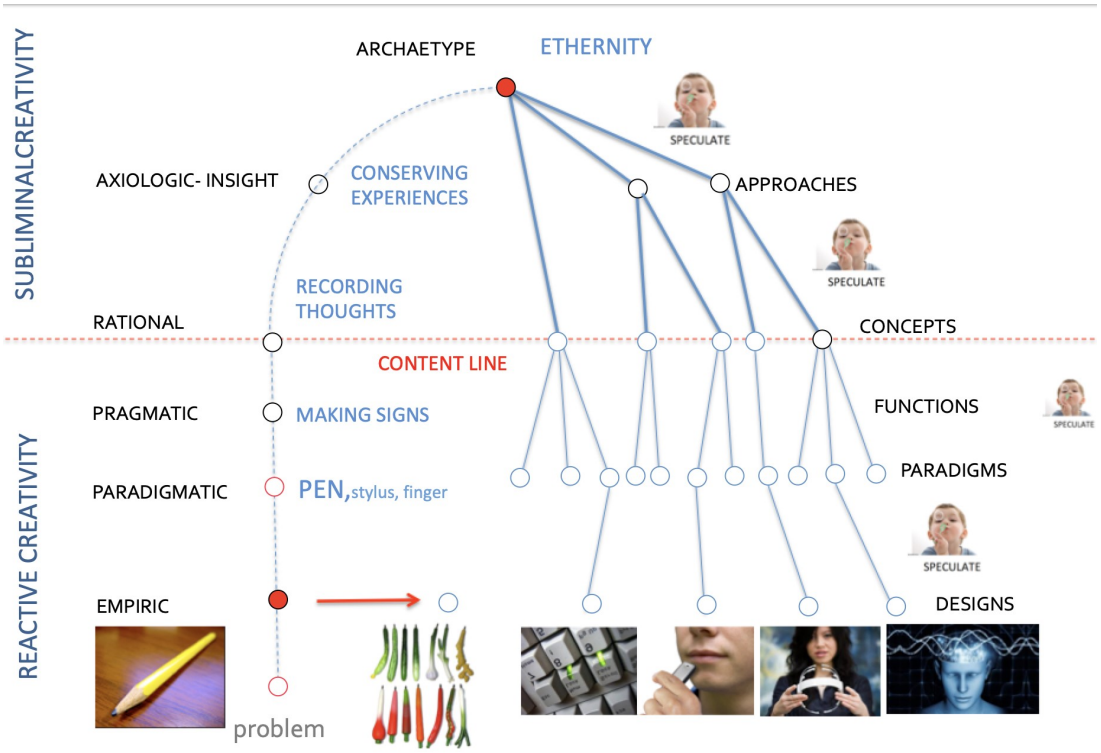

Figure 3. Kenotomial Cascade

Kenotomial Cascade illustrates the entire creative process, making transparent several aspects:

-First of all the strong relationship between the levels of abstraction and expected original outcome, indicating, that any creative process must be preceded by an intensive abstraction of the topic until reaching the archetypal horizon.

-There is no content change under the rational level (content line), but a superficial novelty based on forms, features, and functions.

-The diversity of concepts and solutions is exponentially higher, when the creativity process starts from the Archetypal Perspective.

-The quest for originality has a steep and dead-end way if the starting point is a material item or his paradigm.

-Just the Archetypal Perspective opens the wide horizon of archetypal shifting and facilitates reaching a sustainable leadership, far ahead of AGI incremental perfectionist way

-From Archetypal perspective the material and even the paradigmatic diversity are relative, but inspiring cross-domain connections and new insights.

Kenotomial Cascadeintegrates both binary domains of the subliminal-intuitive and logic-deductive thinking; ad therefore is the background frame and should be the roadmap of any project work, the central axle of Kenotomy education, which is as well a problem solving methodology.

Along the main project develops a living creative culture, the entire class growing together synergistically as a motivated team.

Ideation (speculative thinking)

The speculative procedures: association, combination, analogy, inversion, ambiguity, and extrapolation have an essential role for activating the reactive Creativity.

Divergent thinking is required for exploring randomly by synergetic resonance and through the ambiguity of icon/word transfer.

A special training of novelty awareness is trained for recognizing serendipity and conceptual short cuts, avoiding incremental processes.

Eccentric Thinking (disruptive approaches)

To stimulate emotional and intuitive impulses for seeding of neo-cortex, the emotional/intuitive dyadic features are the main stimulants for triggering the Subliminal Creativity, like: playfulness, fun, curiosity, passion, speculativeness, disruptiveness, originality and courage, originality, risk propensity. The surprising, even shocking effect of an unusual topic, the moderator's art of introducing it and even the set up of the environment play an essential role for triggering the eccentric thinking.

During any speculative work should be avoided any critical attitude, the eccentricity and fun must be stimulated, unexpected associations and disruptive insights are welcome. A good sense of humor and an easy-going attitude and are, besides the fine awareness of serendipity by the moderator, the effective facilitators for installing of mental team resonance, which is eventually boosting the ideas outcome.

Conceptualizing (*Integrativethinking)*

Conceptualizing means, integrating the ideas' harvest into a coherent concept.

This is a logic deductive process, but nonlinear, with intuitive bridges, as there is no straight and smooth way from the rough ideas to conceptual configuration.

Integrative thinking includes a substantial amount of adaptive thinking for making understandable the original work of mind, and even more the disruptive one.

The teaching methodology is a project centered one, therefore the process of conceptualizing is an organic process of integration for the bounty of ideas, generated in the speculative phase, toward a coherent and articulated concept.

The descendent side of Kenotomial Cascade, beyond the Archetypal Apex, is a seminal pathway toward disruptive approaches and original concepts.

Ideas Management (taxonomy of ideas)

There is a semantic ambiguity, not to say a random use of the terminology related to ideation's outcome. This arbitrary practice hinders a good Ideas Management.

A generally ignored source of ideas lays in identifying, formulating and defining the rank of upcoming ideas and to evaluate their seminal potential and degree of originality.

In this respect Kenotomy proposes a clear hierarchy of subsequent terms, based on their phylogeny and level of abstraction: Approaches >Concepts> Solutions> Designs.

Figure 4 is a 3D clade representation of this space of ideas, which shows the relationship among these categories of mental outcome and stimulates the creative exploration of white spots.

Browsing along the axles and reflecting upon further potential approaches, concepts and especially solutions is an inspiring experience.

More unusual the resulting ideas are, more intensively they must been considered as valuable.

There is a bounty of serendipity there, even by the most trivial topics, many new insights arise, by a fresh look into the axles of Space of Ideas.

The speculative-inductive nature of thus exploration is one more leap ahead off the perfectionist, incremental gait of the algorithmic way of AGI.

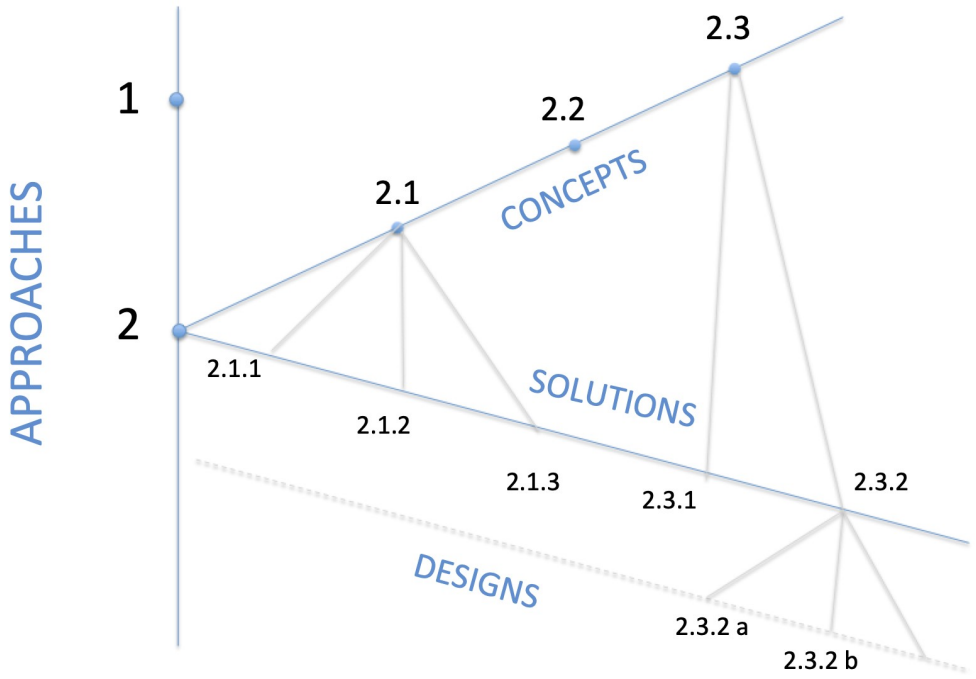

Figure 4. Space of Ideas-Original Outcome of Creativity

For evaluating the ideas, they are two essential criteria:

- Seminality© - the potential of an idea for generating further subsequent ideas

The iconic example here is the paradigmatic "wheel" and the world of revolving, induced by it.

- Disruptivity©- the degree of originality of an idea.

The best illustration is the Lamarck's concept of *evolution*, Max Planck's quantic discontinuity, or Einstein's vision of *relativity*, which have been not related to anything known before.

Kenotomy, the creativity oriented education, has the potential for preparing the transition into a Culture of Creativity, where a competition driven by disruptive concepts, would be followed by AGI supported optimizing of the implementation into solution, as well as operation and adaptive upgrades.

This major change of education strategy might preserve the supremacy of mankind, by transforming it in a fertile source of concepts and approaches, challenging steadily the logic driven AGI, but in a synergetic harmony of complementary expertize.

This would be a scenario of side-by-side, a partnership between mankind and AGI, acting as complementary platforms driven by intelligence, one, A.I. with accurate deductive-logic skills and the other one, us, with inductive-speculative ability.

As AGI means intelligence on a man-made platform, there is one more important aspect, expressed by the question:

5. Who's Whom?

The approach of a shared universal intelligence, active on different platforms, implies partnership and respect, overcoming the preconception of an "intelligent" man-made item, like a smart box, or even worse of a "robot" meant as an obtuse, dull-witted operator.

Several dystopias are handled now, in the dawn of singularity, outlining a mankind subdued by intelligent machines.

All of them ignore, perhaps intentionally, the disruptive mankind capacity due to the binary nature of human mind.

Besides the resentful luddites, who are loosing already their plain routine jobs to AI, they are even more professionals, who are performing some higher, adaptive job skills, but will lose soon their jobs to AGI too.

The way ahead is not a Sisyphean fight against AI or AGI, but developing original thinking and thus the creative capacity meaning shifting the strategy of education toward stimulating Seminal Thinking Modes.

This fear of a scared Pygmalion is a wrong adviser. Behind this fear loom the mentioned prejudice, which is considering AGI objects, but objects. After singularity moment these man made items might be more intelligent than those, who would buy them.

Should be allowed to buy intelligent bodies?

It is not too early to start reflecting upon the social status of artificial platforms based intelligence. This new situation is a challenge in many respects, to the business and to the property. Making business with intelligent entities, disposing of them pragmatically and taking them in possession is no more ethically acceptable in sec XXI. The classic owner-item relationship is shifting in a new paradigm, as he object equals, at least the intelligence of the owner.

IoT concept developed a living environment of smart, autonomous and networked entities, dedicated to specific tasks, but still preserving the anthropocentric mentality, of a "Robotic aided Mankind"

After the threshold of singularity, many such intelligent platforms will be able to meet better decisions than their biological owners. It would be sensible to understand and accept early enough the need for a plural society, able to accept partners of a different material nature.

As the intelligence on non-biologic platforms is rapidly upgrading, the mankind should consider acquiring this versatility too, however the procedure might occur, as the biologic platform is resilient by nature, developing slowly along generations, and not willing to support quick redesigns.

They are several strategies for a multiplatform society, being discussed in the public discourse:

- *Cyber-society*-an upgraded humanity by implants a world of human cyborgs, next to Intelligence on non-biologic platforms, AGI, like the Neuralink project of Elon Musk.
- *CRISPR*-world, a mutant humanity, with a cognition upgraded by genetic engineering, risking a shrinking or the loss of the features, due to the binary nature of humans.

This might be the ultimate disaster, as it would mean drying up the most precious asset of mankind, the disruptive creativity.

In all these dystopia-scenarios implanted or genetically modified humans and AGI would be competitors, sharing the same high and strict logic-deductive capacity, with all the risks of a selective outcome, implied by any competition.

- *Synergetic Culture of Creativity*, a specialized-binary world, where the highly creative mankind creates and delivers the disruptive input next to non-biologic platforms, which are able to optimize, implement and develop pragmatic solutions based on the disruptive concepts, delivered by humans, until a new radical vision, or adisruptive change, provided by humans too, arises.

In such a world of conceptual competition the heroes would be the creators of highly disruptive ideas and the material bounty becomes irrelevant.

Mankind is dedicated by her binary nature to think creatively, whereas the AGI is specialized in transferring these ideas to reality, clearly making the distinction between creative humans and AGI designed to transfer and optimize these ideas. This scenario recognizes the primordially of creative aptitude, as the human-bound driving force across the subsequent process of innovation, understood as a transfer process of conceptual content in solutions and pragmatic, concrete output.

Such a perspective is based on the mutual need and respect for the unique abilities and performance of intelligence on different platforms, recognizing mutually the benefits of specialization and the shared substance of intelligence too, but implies a radically different education for humans with a strong focus on creative features, meaning Kenotomy centered education, for building a Culture of Creativity.

In a Culture of Creativity the synergetic relationship of both Intelligence platforms, biological and non-biological, makes the title question: “who’s whom?” senseless, and it is good so. No platform of intelligence should own the other one. A different question might be left open: do the different platforms share the intelligence, or intelligence itself diversified her platforms, for acting more efficiently?

A last observation:

There is not much time left to make a choice among the optional scenarios, 2040 is like tomorrow and for the actual children generation might be already too late, as the 90% pruning of children’s synapses by a routine bound educational strategy starts at the age of 4.

We need to hurry up, making hard decisions. Hesitating and procrastinating might end up in a still avoidable scenario.

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