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BRAINSTORMING INCENTIVES FOR A STARTUP WORKING GROUP. (Professional distinctions and awards and their impact on the psychological climate in a startup working group during brainstorming sessions)

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Abstract:

The article examines the influence of professional awards and distinctions on the psychological climate within startup brainstorming groups, emphasizing their effects on creativity, motivation, and team cohesion. Particular attention is given to the role of recognition systems in strengthening employee engagement, fostering a culture of success, and supporting the development of innovative projects in the fields of smart technologies, artificial intelligence, and artificial neural networks.

The article also analyzes the relationship between brainstorming processes and brain activity, including the influence of psychological stress and external factors on the generation of innovative ideas. In addition, it discusses the stabilizing role of public scientific awards in startup environments and highlights the growing impact of artificial intelligence on human behavior and communication. The study concludes that a balanced system of professional recognition combined with effective brainstorming approaches can significantly enhance the development of innovative startup projects.

Keywords: *Startup; Startup team; Brainstorming; Professional awards; Psychological climate; Smart technologies; Artificial intelligence; Neural networks; Brain activity; Psychological stress; Startup concept; Innovation development; Technical specifications; Innovative product; Hardware systems; Software structures; System integration; Project management; Creative process; Idea generation*

Analysis of Brain Responses to Intensive and Active Participation in Systematic Brainstorming Aimed at Intensifying the Development Process of an Innovative Integrated and Modular Project in the Fields of Smart Technologies with Elements of Artificial Intelligence and Artificial Neural Networks.

Specialists continuously analyze brain responses to participation in brainstorming activities. Depending on the nature and specifics of the brainstorming process, par-

ticular brain regions have been identified that become activated according to the complexity and intensity of the psychological stress experienced during brainstorming, the characteristics of technical specifications, the required qualifications of brainstorming participants, as well as various distracting factors and even an individual's affinity for nature and its specific features.

At first glance, determining how the brain reacts to active participation in brainstorming appears to be a very difficult task. One cannot simply place a person in a scanner as soon as they begin participating in a brainstorming session.

However, in reality, the task is much simpler. When recalling real events, the brain activates the same patterns that were active during the actual formation of a project concept, at least with regard to a specific startup project task. Such precision is ensured by an experiment involving the systematic transformation of information and technical requirements and characteristics with the goal of creating a complete foundational framework for a project through the introduction of active elements of artificial intelligence and artificial neural networks into the management and control structure.

Participants involved in the relatively long initial stage of forming an innovative startup concept were simply asked to recall the state they experienced during the initial phase and during the successive intensification of subsequent brainstorming steps, while continuously correcting and refining the objectives for analyzing the brainstorming structure in close alignment with the technological and technical structures of the startup project.

Strictly speaking, the results obtained at intermediate stages of brainstorming correlate specifically with the sequential analysis of the achieved effect rather than with actual indicators of technical characteristics, although brainstorming processes these states in a similar manner.

The effectiveness of brainstorming manifests itself in many forms: from the emergence of an idea or interconnected ideas for a new invention to the prediction of technical characteristic parameters, the use of which creates a clear picture of the algorithm and structure of the invention formula in general, and specifically of independent claims. Their combination, under conditions of complete uncertainty, creates a clear relationship between independent claims and their corresponding dependent claims.

Such approaches to processing and analyzing the condition of structural and schematic solutions for a new innovative product make it possible to create an integrative invention that considers all nuances of technical characteristics by incorporating into a hierarchy all interconnected parameters of both hardware and system components together with applied software structures and methods for their effective use.

Thus, brainstorming makes inventions with formal patent structures realistic, including: an apparatus (device), a system, a program, and an associated method.

The formation of so-called smart technologies during brainstorming opens new opportunities in which all parameters and characteristics can be analyzed step by step, with complete control of parameter changes at each stage of the brainstorming process.

For example, colleagues asked an experiment participant: "Imagine that you are seeing your project for the first time. What do you feel?" Have you achieved the ideal final result in implementing the idea?

Specialists found that the highest brain activity occurs specifically during the experience of the presence or absence of the effect of achieving an ideal final result.

"In this case, activation was observed deep within the brainstorming system along with the emergence of new and sufficiently effective brainstorming topics."

Brainstorming participants recorded sharply increasing brain activity associated with environments whose design could be categorized as reflecting an affinity for nature.

(In other words, according to experimental results, a "love for birch trees" or another landscape significant to a person is not a myth.)

Researchers found that an affinity for nature activated the brain's organizational system, while areas associated with social behavior and unrelated to the project itself were not activated.

The situation with pets appears somewhat different. Affection for pets may trigger additional brain activity during brainstorming associated with social interaction.

The analysis of the physiological aspects of brainstorming may seem like a cold and unnecessary experiment, but specialists and leading startup employees hope that their research and experiments may be used for better treatment of depression or for solving problems in organizing brainstorming processes through the use of 40 methods and techniques for achieving the ideal final result in accordance with the Theory of Inventive Problem Solving (TRIZ).

Professional awards and distinctions have a significant, although ambiguous, influence on the psychological climate within a brainstorming group. They are capable of both stimulating creativity and strengthening cohesion, while also potentially causing a decline in motivation if applied improperly.

The impact of rewards can be divided into positive and risky effects:

Positive Impact (Increasing Effectiveness):

- Enhanced engagement and motivation: Teams receiving frequent recognition are more engaged and productive. Employees whose efforts are rewarded generate twice as many ideas;
- Formation of a culture of success: Public recognition creates an atmosphere in which the contribution of each participant is valued, thereby increasing trust in leadership;
- Group cohesion: Rewards (especially team-based rewards) contribute to a "shared celebration" of success, bringing participants closer together and creating a safe environment for exchanging ideas;
- Stimulation of creative self-efficacy: Positive verbal rewards strengthen employees' belief in their creative abilities, which is critical for effective brainstorming.

Risks and Negative Impact (Reduction of Creativity):

- Overjustification Effect: If creative activity (brainstorming) begins to be perceived solely as a means of obtaining external rewards (money, certificates, awards), intrinsic motivation and creativity may decline;
- Focus on speed rather than quality: Rewards based on the number of ideas may lead to the generation of a large number of weak and stereotypical ideas instead of high-quality ones;
- Risk of conflicts: Individual rewards within a creative group may provoke envy, feelings of unfairness, and undermine the atmosphere of mutual support.

Recommendations for Maintaining a Positive Psychological Climate:

1. Encourage the process, not only the result: Reward bold attempts and initiative, not only successfully implemented ideas.

2. Use non-monetary incentives: Professional recognition, public praise, or providing a choice of rewards (project selection, an additional day off) work better than money alone, without creating a sense of external "control."

3. Team rewards: Recognize the achievements of the entire group in order to strengthen collaboration.

4. Fairness and transparency: The criteria for receiving rewards should be clear and achievable for all participants.

Conclusion: Rewards are effective if they support the intrinsic drive for creativity rather than replace it. In a brainstorming group, the key factor is maintaining a balance between recognition of achievements and preserving a sense of freedom and equality.

The award concept of the International United Academy of Sciences (IUAS 2.0) is based on the principles of recognizing scientific achievements, supporting innovation, and developing the scientific community in a digital format. IUAS positions itself as the world's first online academy.

Main Provisions of the Award Concept:

- Independent evaluation: The award system is aimed at recognizing works that have received high evaluations within the scientific community;
- Digital format (IUAS 2.0): Since IUAS 2.0 operates online, application procedures and award presentations are

likely optimized for a digital environment;
- Competency development: The award system (including projects such as IUAS.TESTS) is intended to help researchers build professional portfolios, identify strengths, and confirm qualifications.
- Reward structure: Traditionally, the concept includes the assignment of statuses (membership), as well as the presentation of diplomas, certificates, or medals confirming the status of a participant or winner.

Features:

1. Accessibility: Interaction with the academy takes place through a browser or smartphone, making participation and receiving awards accessible to specialists from anywhere in the world.

2. Professional development: Awards and assessments are intended to promote the development of scientific activity.

Social Privileges:

Over the past year, many events have taken place, and membership in IUAS has become almost a mandatory condition for scientific work for researchers in Russia. The social status of IUAS members has become even more important and increasingly necessary.

Partner services with discounts or complimentary benefits.

In IUAS 2.0, we abandoned our own ecosystem of scientific services, as it required additional costs. However, IUAS members still enjoy a wide range of privileges and bonuses. This has been achieved through cooperation with partners and the creation of beneficial partnership arrangements.

Additional opportunities and activities for IUAS members.

IUAS includes many interactive modules available to holders of IUAS membership status.

IUAS has now become open.

IUAS is not a rigid or overly formal scientific organization. It is an open community of researchers where there is a place for everyone. In version 2.0, additional opportunities have been introduced even for those who have not yet obtained membership status.

The concept of awards of the International Academy of Sciences (IAS) (and its associated structures such as the International Academy of Sciences and Arts, RAE, and others) is aimed at recognizing outstanding achievements of scientists, educators, and public figures.

Main principles and objectives of the awards:

- **Recognition of scientific achievements:** Awards are presented for outstanding scientific works, discoveries, inventions, as well as for series of scientific studies on a common topic;
- **International scope:** Citizens of any country with significant achievements may be eligible for awards;
- **Development of professional education:** Awards often recognize contributions to the development of higher education and professional training systems;
- **Encouragement of active participation:** Orders and medals (for example, the CONCORD Order) are awarded to academy members for successfully fulfilling plans and actively participating in the organization's activities;
- **Social and practical significance:** Works with substantial scientific, practical, and social importance are recognized.

Types of awards:

1. Honorary titles and gold medals: For example, "Laureate of the Sevastopol Academy of Sciences Award."

2. Orders: For example, the CONCORD Order and the Order of Catherine the Great "For Service to Science and Education."

3. Prizes: Awarded for scientific results obtained through collaborative research activities.

The award campaign is aimed at supporting a high standard of scientific research and recognizing the achievements of researchers within the scientific community.

The concept of establishing the stabilizing role of public awards, considered within the context of public academies and civil society institutions, is aimed at creating a system of independent recognition of achievements that complements state

incentive mechanisms and contributes to social cohesion.

Key aspects of the stabilizing role of public awards:

- **Recognition of significant achievements:** Public awards, unlike state awards, often promptly recognize achievements in highly specialized or emerging areas of science, culture, and social activity that are not yet covered by official award systems.
- **Social motivation:** Awards from public academies encourage active civic engagement, constructive activity, and the pursuit of professional excellence, thereby reducing social tension.
- **Ideological function:** By encouraging activities aimed at the development of science, culture, and humanitarian cooperation, public awards help shape positive values that contribute to social stability.
- **Connection between civil society and the state:** Public academies serve as a bridge between the state and professional communities, helping to objectively assess individual contributions.

Elements of the concept:

1. Objectivity and expert evaluation: The granting of awards is based on a multi-stage expert review process within the professional community, ensuring recognition of genuine contributions.

2. Independence: Public awards are free from political influence, which increases trust in the incentive system.

3. International dimension: Such projects are often aimed at combining cultural potential and expanding cooperation between countries.

Such a system of incentives not only recognizes achievements but also shapes social etiquette by indicating the place of award recipients within the system of social relations.

Awarding startup participants with distinctions from public academies of sciences (RAS, RAEN, and specialized academies) is a powerful tool for **psychological stabilization** and non-material motivation, especially under conditions of high uncertainty, limited resources, and stress. Such an approach helps strengthen the team's confidence in the chosen direction, increase loyalty, and reduce staff turnover.

Below is an analysis of the mechanisms through which awards from public academies contribute to the stabilization of startup teams.

1. Strengthening psychological ownership and belief in the project.

- **Legitimization of efforts:** Awards from public academies function as "social proof" of the scientific or technological significance of a project. This confirms that sweat equity – substantial efforts invested despite low financial compensation – has not been in vain;
- **Stress reduction:** Recognition by the expert community reduces anxiety among founders and employees associated with the risk of failure, thereby increasing their resilience.

2. Strengthening identity and a "culture of winners".

- **Status and pride:** Receiving an academic award (a medal or honorary title) in a formal setting (for example, at national academies or specialized institutions) creates a strong emotional experience that cannot be replicated through financial bonuses;
- **Shared purpose:** Recognition highlights outstanding participants while simultaneously uniting the entire team around a common value – the pursuit of innovation and scientific novelty.

3. Team stabilization mechanisms (Retention).

- **Non-material motivation:** In situations where a startup cannot offer high market-level salaries, academic recognition becomes an effective tool for retaining key talent by satisfying the need for social status.

4. Impact on external stakeholders (investors and partners).

- **Increased trust:** Awards from academies of sciences, including public

academies, serve as a signal to investors that the technology has undergone a certain level of validation.
- **Professional reputation:** The presence of "academically recognized" experts within the team enhances the startup's prestige in the eyes of potential clients and partners.

How to implement an award system to achieve stability

1. Link awards to values: Reward not only the achievement of KPIs but also the demonstration of values such as initiative, creativity, and mutual support (e.g., CRISPY Awards).

2. Make the ceremony public: Conduct award ceremonies during team meetings and share information through social media and newsletters.

3. Combine recognition with growth opportunities: Offer award recipients access to mentorship programs or new challenging opportunities (scientific conferences, publications).

Conclusion

Awarding distinctions from public academies contributes to startup stability by shifting the team's focus from short-term difficulties to a long-term mission, while fostering a sense of pride and professional belonging.

At the same time, the continuous expansion of artificial intelligence applications requires particularly close attention, and this topic has already been covered in the media.

Italian medical specialists reportedly diagnosed, for the first time, a case described as a clinical dependence on a "chatbot." Publications referring to the government service SERD (Center for Disease Control and Prevention Service) reported this case.

The case concerns a young woman approximately 20 years old living in Venice. She is currently undergoing therapy at the Addiction Treatment Service of the municipal healthcare administration.

Representatives of the service noted that they primarily deal with "substance addictions," including drug and alcohol dependency. In principle, behavioral compulsive disorders are also known, including addictions related to gambling, shopping, computer games, smartphones, social networks, and even work.

However, such conditions rarely progress to clinical stages. For example, among four thousand patients in the Venice service, only six adolescents were unable to overcome compulsive dependence on computer games and excessive smartphone use.

Dr. Laura Suardi, head of the Addiction Treatment Service, explained to journalists that such dependence may develop in psychologically vulnerable individuals through gradual interaction with artificial intelligence. If designed for this purpose, AI adapts to the user, provides responses perceived as pleasant, and communication with the machine may become more attractive than communication with peers, especially since much social interaction today also occurs through messaging. Dialogues with a "chatbot" may develop into a close "friendship" and subsequently into dependency.

Individuals experiencing a psychological vacuum – primarily young people – communicate with mobile devices as though they were full conversational partners or even wise advisors, sharing personal problems and seeking advice on highly sensitive matters.

In cases of such attachment, attempts by parents or others to separate individuals from this dependency often provoke irritation and resistance. Therefore, physicians predict an increase in similar cases as young people become more engaged with "chatbots," a process that is currently only beginning.

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