





Innovative Solutions: Tackling Inertia in Teaching Dynamics

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Abstract: The article highlights the environmental challenge of psychological inertia and the system's inertia in the interaction between teachers and the development of strategies to overcome it. The unconscious selection of influence methods, automatic deployment of teachers' action sequences (techniques, intonations, body signals), and a lack of mental energy to alter pedagogical thinking contribute to psychological inertia. Additionally, insufficient automated alternative approaches further hinder change, compounded by resistance in the teacher's personality's functional systems. Overcoming this inertia requires specialized psychological training, focusing on cyclically reconstructing and modifying the configuration of influence methods. Teachers need heightened awareness at the moment of choice, understanding existing high-frequency strategies, and transforming automatic actions for creative interaction with students. Shifting from superficial to profound influences contrasts with contemporary frontal techniques, fostering traits essential for students' active, independent, and autonomous future lives.

1 INTRODUCTION

1.1 Introduction to the Changing Educational Paradigm


The evolving landscape of education demands a shift in goals and objectives, focusing on individual development and nurturing creative qualities. This necessitates innovative approaches and the adaptation of traditional didactic principles. The modern specialist must not only acquire fundamental knowledge but also develop general thinking and creative abilities. This interplay is crucial for preparing individuals to adapt to rapid changes in education, industry, and information technologies, as highlighted by M. Zinovkina.


1.2 Teaching Creative Thinking and Overcoming Psychological Inertia


Teaching individuals to think creatively and generate non-standard ideas is a complex task. Effectively nurturing creative thinking involves teaching practical ways of engaging in creative activities and overcoming psychological inertia. Creative imagination, considered a controlled process, plays a pivotal role. According to G. Altshuller and M. Zinovkina, a highly developed imagination is essential for envisioning creative solutions before their actual implementation. Initiating this development from childhood is crucial for satisfactory long-term results.


1.3 Understanding Psychological Inertia and its Impact on Creativity

Psychological inertia, the resistance to revising existing ideas even when unsupported by experience,

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significantly impacts creative problem-solving. Genrikh Saulovich Altshuller, a key figure in TRIZ, identified various types of psychological inertia, ranging from habitual functions to traditions. Overcoming these inertias is essential for effective decision-making in situations requiring creativity and innovation, as evidenced by research on creativity and innovation activities by I. Voronyuk, M. Bafaev, and others.

1.4 Socio-Psychological Dimensions

Psychological inertia has broader implications in the socio-psychological realm. Tolerance, a key aspect in societal harmony, is affected by psychological inertia. The article emphasizes the importance of addressing psychological inertia not only for fostering creativity but also for promoting tolerance and awareness in society. Understanding and overcoming psychological inertia is pivotal in the socio-economic context, particularly in creating conditions for the formation of competitive personalities in the younger generation.

1.5 Challenges in Implementing Innovative Education

The acceleration of economic development and the transition to an innovative education system pose challenges in overcoming psychological inertia, especially among teachers. The article underscores the need for psychological readiness for innovation, a critical factor in the successful implementation of innovative transformations in education. Despite the importance of innovation, the article notes that psychological factors, such as resistance to change, hinder the adoption of new methods and technologies. The study calls for further research to address the psychological readiness of teachers for innovative activity, emphasizing the significance of this aspect in creating competitive and innovative educational environments.

2 RESEARCH METHODOLOGY

To achieve the set goals and objectives, a comprehensive approach was taken, utilizing various scientific research methods:

a) Theoretical methods such as analysis, synthesis, generalization, systematization, modeling, and design were employed for a theoretical examination of scientific sources related to the

problem of determining, evaluating, and developing pedagogical methods and creative techniques for teacher-student interaction. This included the development of a theoretical model of creative interaction and supporting the foundations of empirical studies on specific aspects of the problem.

b) Empirical methods, including questionnaires, testing, questioning, interviewing, document analysis, peer review, and monitoring, as well as psychodiagnostic methods, were utilized to study personality traits and properties. These methods aimed to assess their significance in the teacher's choice of methods and the emergence of individual inertia configuration of influence methods. Expert assessments were also employed to study internal and external factors influencing creativity in teacher-student interaction.

c) Experimental methods were employed, including ascertaining experiments for structural analysis, formative experiments for the development of psychological tools, and techniques of creative pedagogical interaction. This involved special psychological training for teachers and psychological work with students to enhance creative interaction skills.

d) Interactive creative methods such as moderation and brainstorming were used.

e) Interactive correctional and developmental methods, including active socio-psychological education and targeted training to impact the development of creative skills, were applied in the course of teacher-student interaction.

g) Mathematical-statistical methods like variational, correlational, and factorial analysis, utilizing the statistical program package SPSS, were employed to clarify latent structures, personal determinations, assess significance of changes, etc.

To address the problem of "inertia in the system of means of interaction between the teacher and identify promising areas for the development of ways to overcome it," a complex system of valid and reliable psychodiagnostic methods was used. This included the "Checklists of methods of influence and interaction between teachers and students" and the "Checklist of indicators of subsystems of students' personal constructs as target objects of the teacher's creative influence." These methods were developed by I. Voronyuk during the scientific study "Psychological foundations of creative interaction between teachers and students" and have been tested and implemented in various educational institutions in Ukraine and Uzbekistan.

To understand the role of basic personality traits and characteristics in the degree of creativity of

interaction, the 16LF test by R. Kettel and questionnaires on creativity and pedagogical activity features were utilized. Observation and conversation methods were employed during the analysis of configurations of methods of influence and interaction of teachers, as well as to assess the progress dynamics in formative experiments with students and teachers. Over 500 respondents from educational institutions in Ukraine and Uzbekistan participated in the validation of these methods.

3 RESULT AND DISCUSSION

In The problem of inertia in the field of education, as analyzed by various researchers such as G. Altshuller, I. Voronyuk, M. Zinovkina, and R. Gareev, is deeply rooted in the resistance of teachers to change their established methods of influence. This fixity is attributed to factors like efficiency, energy intensity, and a tendency towards simplification in the teaching process. Teachers often stick to familiar techniques, rejecting new and potentially more effective ones due to the effort required for adaptation and the desire for simplicity in handling large student populations within limited time frames.

One major aspect of the inertia problem is the difficulty teachers face in restructuring their methods of influence without significant effort. The existing stereotypical system of methods works seamlessly, driven by thousands of repetitions and the elimination of less effective approaches. Introducing creativity into this system requires conscious, volitional repetitions of new methods, but the reluctance for prolonged training sessions and the subconscious resistance to change hinder this process.

To address the inertia problem at the individual teacher's level, there is a need to disrupt their existing system temporarily. One effective training technique involves prohibiting the use of standard methods when introducing and practicing new techniques. However, teachers often resist abandoning their established schemes, making it challenging to incorporate new methods into their fixed systems.

The study of inertial self-preservation in teaching methods reveals the importance of transferring new methods to the subconscious through automated training. Achieving this requires giving the new method high priority and probability of application within the existing pedagogical model. The challenge lies in the conscious combination of simple techniques and the difficulty of non-verbal accompaniment, which is often hindered by the

teacher's rational self-confidence and the time constraints of real-time interactions.

The fixation and stereotyping of teaching methods are influenced by factors such as frontality, inequality of status, and gender-based tendencies among teachers. Female teachers, in particular, tend to rely on gender-specific strategies that focus on the process of interaction, leading to unnecessary automation of certain methods. Overcoming this involves assimilating male gender strategies, concentrating on deeper causes of student behavior deviations.

The key psychological challenge in teacher training is raising awareness at the "choice point" when deciding on the appropriate line of influence. Training methods include creating short pauses, internal settings for non-standard influence, and automating new influence algorithms. Overcoming psychological inertia requires an increased level of personal psychic energy and a positive mood for teachers to instantly choose alternative lines of influence.

Psychological inertia is seen as a positive effect of a teacher's professional development, creating stable functional schemes for deploying lines of influence. However, to foster creativity in teacher-student interactions, there is a need to periodically overcome inertia by preserving existing algorithms and significantly increasing the importance of new lines of influence.

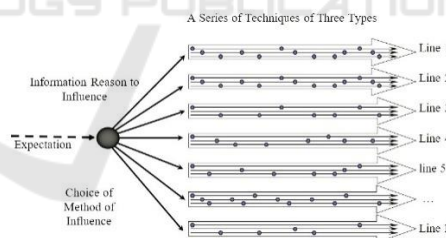


Figure 1: Teaching Impact: Diverse Strategies for Information Occasions.

The author, I. Voronyuk, conducted a comprehensive analysis of psychological literature to develop checklists aimed at studying the methods of influence and interaction between teachers and students. These checklists also included indicators for identifying subsystems of personality constructs in students targeted for creative influence. The psychodiagnostic methods proposed by Voronyuk, namely the "Checklists of methods of influence and interaction of teachers with students" and the "Checklist of indicators of subsystems of students' personal constructs, as targets for the teacher's

creative influence," were validated with over 500 participants from Ukraine and the Republic of Uzbekistan, including teachers, students, and educational professionals.

The study involved both ascertaining and molding experiments, with data collected and analyzed before and after corrective and developmental interventions (training). The statistical analysis of the empirical data was conducted using the SPSS package. The factor analysis of the frequency of using 487 "techniques of influence" by 131 teachers revealed typical patterns of influence, including algorithmic meaning and non-verbal accompaniment.

An important finding from the statistical analysis was that teachers, when faced with an opportunity for influence, have a multitude of response strategies at

their disposal. The results indicated that teachers tend to prioritize certain strategies based on the weight of the main components, with more frequently used strategies occupying higher ranks. Over time, teachers naturally eliminate ineffective methods, relying on those with quick success or meeting other pedagogical criteria. The study suggested that by the third year of teaching, teachers develop a psychological inertia, associating specific information occasions with automatic deployment of particular methods of influence.

The proposed consideration of the priority of rank average estimates for the "criteria for choosing methods of action" in Table 1 provides further insight into the decision-making process for teachers when selecting influence strategies.

Table 1: In Focus: Mean Scores of Reception Selection Criteria.

First cut X cf.=65.2; s=12.8 [78.0; 52.4]			Second cut X cf.=67.7; s=9.8 [77.5; 57.9]		
Indicators	X cf.	s	Indicators	X cf.	s
Criteria for choosing methods of influence: creating a positive state	79.8	18.9	Criteria for choosing methods of influence: creating a positive state	79.9	18.7
Criteria for choosing methods of influence: the positivity of the emotions evoked in students	76.8	19.2	Criteria for choosing methods of influence: the positivity of the emotions evoked in students	76.9	22.8
Criteria for the selection of methods of influence: the creation of training installations	75.1	21.4	Criteria for the selection of methods of influence: the creation of training installations	76.4	22.7
Criteria for choosing methods of influence: moral acceptability	74.6	19.6	Criteria for choosing methods of influence: initiating student activity	75	22.8
Criteria for choosing methods of influence: the success of personal use	74.4	20	Criteria for choosing methods of influence: moral acceptability	74.9	21.1
Criteria for the choice of methods of action: the effectiveness of the method in practice	73.6	20.7	Criteria for the choice of methods of action: the effectiveness of the method in practice	73.5	20.8
Criteria for choosing methods of influence: initiating student activity	73.4	23.6	Criteria for choosing methods of influence: the success of personal use	71	24.5
Criteria for choosing methods of influence: freedom of conquest and execution by the student	70.7	20.1	Criteria for choosing methods of influence: freedom of conquest and execution by the student	70.8	22.1
Criteria for choosing methods of influence: influence by appealing to the mind of the student	70.1	21.4	Criteria for choosing methods of influence: influence by appealing to the mind of the student	70.4	26
Criteria for choosing methods of influence: creating a physical tone	68.6	26.5	Criteria for choosing methods of influence: influence by appealing to the student's subconscious	69.6	22.4
Criteria for choosing methods of influence: guaranteed conquest and execution	68.3	22.3	Criteria for choosing methods of influence: guaranteed conquest and execution	68.3	23.5
Criteria for choosing methods of influence: influence by appealing to the student's subconscious	65.4	19.3	Criteria for choosing methods of influence: creating a physical tone	67.3	29.2
Criteria for choosing methods of influence: the strength of toning students	56.7	23.6	Criteria for the choice of methods of influence: the termination of the preliminary activity of students	62.9	26.5

Criteria for choosing methods of influence: the strength of psychological pressure	48.7	28.3	Criteria for choosing methods of influence: the strength of toning students	59.7	29.2
Criteria for choosing methods of influence: creating a meditative state	48.6	29.6	Criteria for choosing methods of influence: the strength of psychological pressure	58.9	28.9
Criteria for the choice of methods of influence: the termination of the preliminary activity of students	45.9	30.2	Criteria for choosing methods of influence: creating a meditative state	53.5	28.8
Criteria for choosing methods of influence: the negativity of evoked emotions in students	37	28.3	Criteria for choosing methods of influence: the negativity of evoked emotions in students	41.4	30.5

Each day, the teacher unconsciously implements numerous influences, which, over time, undergo subconscious comparisons, forming an internal hierarchy based on the "effectiveness of the technique" within the teacher's own performance. Individual techniques and influences prove effective for some teachers but ineffective for others, resulting in the gradual development of a personalized configuration of influence methods tailored to the teacher's characteristics and personality.

As years pass, the automation of these influences reaches a level where they occur effortlessly, devoid of conscious decision-making. In the pedagogical

context, this is perceived as the pinnacle of pedagogical skill. Consequently, early in a teacher's career, an effective automatic pedagogical behavior emerges, solidifying into a stereotyped system of methods. This rigidity poses a challenge to the incorporation of new strategies into the existing framework, rendering the system inertial in a negative sense. However, from a positive perspective, it becomes skillful, stable, and maximally effective.

Table 2 illustrates the ranked average assessments of the frequency with which teachers employ various methods and action techniques.

Table 2: Effective Educating: Ranking Methods for Impactful Teaching.

First cut X cf.=53.4; s=17.5 [79.0; 35.9]			Second cut X cf.=58.1; s=16.0 [74.1; 42.1]		
Indicators	X cf.	s	Indicators	X cf.	s
Explanation: through informing, describing, commenting, interpreting, comparing, simplifying	81.3	16.3	Explanation: through informing, describing, commenting, interpreting, comparing, simplifying	82.9	18.3
Distancing by positive methods: advice, recommendation, teaching, praise, consent	79.7	15.9	Motivation: multilateral actualization of motives: recognition, near and distant future, economic - and practical considerations, form, prestige, reputation, belonging, external reasoning, social recognition, connections, participation, material things	79.2	18.6
Motivating gratitude: positive, with praise, morally encouraging for a specific manifestation	78.8	17.4	Distancing by positive methods: advice, recommendation, teaching, praise, consent	79.2	17.6
Moral support, encouragement, exercise	76.5	20.6	Motivating appreciation: positive, with praise, morally traceable for a specific manifestation	79	19.7
Motivation: multilateral actualization of motives: recognition, near and distant future, economic and practical considerations, form, prestige, reputation, belonging, external reasoning, social recognition, connections, participation, material things	75.5	16.6	Expression of gratitude: a distant emotionally expressive expression of gratitude for attention, action, future action, quality of action or behaviour as a request, command, expectation of the necessary way of personal functioning from the student	77.8	21.9
Criticism concern, compassion and praise	74.9	21.1	Moral support, encouragement, exercise	77.4	22.5
Motivating summaries: focusing on goals, summarizing and as an impulse to action	73.3	18.3	Translation of information: initiation by the method of open questions of logical, sequential translation of information, its interpretation and formulation of conclusions	77	21.7

Expression of gratitude: a distant emotionally expressive expression of gratitude for attention, action, future action, quality of action or behaviour as a request, command, expectation of the necessary way of personal functioning from the student	73.2	22.6	Reasoning: active, fundamental, two-sided, from advantages to disadvantages, rational, cold, avoiding exacerbations	74.9	20.5
Decisive, persistent, provocative advice	73.2	27	intonation calming	74.8	22.9
Translation of information: initiation by the method of open questions of logical, sequential translation of information, its interpretation and formulation of conclusions	72.5	20.3	Gratitude: Neutral, Enhanced, and Encouraging-Critical Appreciation	73.6	22.7
Motivating influence: due to social needs for respect, security, confidence, self-expression	72.4	20.3	Interest generation: through attention-grabbing, detail, imaginative stimulation, stress relief, imitative status equality, and transformation of interest into student action	73.6	21.5
Demonstration of trust as a means of finding out the truth	72.2	25.3	Motivating summaries: focusing on goals, summarizing and as an impulse to action	73.5	21
Management of attention and content of the actual field of consciousness of students	71.3	18	Please do not do with impeccably polite stylistically elevated style of address	73.4	19.8
Interest generation: through attention-grabbing, detail, imaginative stimulation, stress relief, imitative status equality, and transformation of interest into student action	71	18.4	Criticism concern, compassion and praise	73.4	23.2

Overcoming inertia in specialized psychological training (references 4 and 9) appears to hinge on disrupting the established system of methods. For instance, in a psycho-technical exercise where the directive is to employ each subsequent influence in a novel way, avoiding repetitions. Only when the stereotypical patterns of influence are depleted does the instructor become receptive to new techniques suggested by the psychologist-trainer and to intuitive modifications of influence methods. This shift can be seen as a qualitative leap in overcoming psychological inertia, leading to a truly creative interaction with students.

Initiating the process of overcoming psychological inertia involves establishing an internal value priority to act differently. The path to acquiring this and breaking one's psychological inertia in professional pursuits begins by embracing novelty in every aspect of personal life outside the professional domain. Initially, actions are taken for the sake of novelty itself, but over time, more effective methods emerge among the new approaches. By focusing on these effective methods, individuals develop automaticity in adopting a new, more efficient way of life, ultimately banning outdated practices after numerous repetitions.

The pivotal factor in overcoming psychological inertia within the system of influence methods is instigating actions in new ways in every moment of one's life, thereby understanding the psychological mechanism of total awareness of one's life flow. This represents a complex and challenging strategy for fostering creativity based on complete awareness of one's life activity. Teachers, when fatigued, often avoid this strategy, contributing to the solidification of stereotypical methods and hindering the transition to creative activities.

A psychological and pedagogical analysis of prevalent teacher strategies reveals a focus on the immediate and correction of situational deviations. While important, this focus proves a significant drawback in terms of fostering creativity. High school students should be presented with models of active behaviour that encompass leadership, management, competition, and creative activities for generating and implementing their own ideas. These models should be future-oriented, aligning with the evolving economic, political, and technological systems. Teachers, by simplifying their activities and concentrating mainly on current situations, inadvertently foster a performer mentality in students. This arises from the overuse of interaction styles emphasizing unequal status relations and insufficient

consideration of the psychological aspects crucial for shaping the "ideal" pedagogical model of personality.

Crucial aspects for enhancing the creativity of teacher-student interactions, aligning with the needs of young people post-graduation, include fostering business interaction, public engagement, independence, autonomy, leadership, pragmatic problem-solving, self-development in diverse economic areas, and familiarity with market interaction models. Additionally, cultivating contact skills with a balance of social freedom and responsibility, employing psychological tools for individual mastery, promoting tolerance, and fostering a general psychological culture are essential elements in this pursuit.

4 CONCLUSION

The essence of the mechanism underlying a teacher's choice of influence and interaction methods lies in the unconsciousness during the decision-making moment, the automatic execution of established chains of actions (including techniques, intonations, and body signals), a shortage of mental energy to shift pedagogical thinking, and the inadequacy of alternative automated pathways for influencing actions. This psychological inertia is further compounded by the resistance within the teacher's personality's functional systems, forming a complex web of associated elements. Consequently, the foundation for enhancing the creative nature of teacher-student interactions through specialized psychological training should involve a continual process of reconstructing and modifying the configuration of influence methods available to teachers.

This training aims to heighten teachers' awareness at the critical juncture of choosing influence methods during an "information occasion." It involves cultivating a profound understanding of existing high-frequency individual pedagogical influence strategies, typically implemented automatically. To foster creative interaction with students, there's a need to transform these strategies and redirect influences from surface-level manifestations to deep personal connections. This approach opposes contemporary frontal techniques, which tend to hinder activity and cultivate traits that limit students' initiative, hindering the development of skills essential for an active, independent, and autonomous future life.

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