

Personal Reflection Development as Means of Forming Culture of Scientific Text Perception by Humanitarians

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Abstract: *The paper presents the structure, contents, principles of the organization of the forming experiment on personal reflection development, the results, the interpretation and conclusions of the research. The program of development of creative abilities during the process of understanding the scientific text is described and tested, and it testifies about the significance of creative interpretation for the success of educational and professional activity of students of Humanities of higher educational institutions. The purpose of the paper is to prove that the process of creative interpretation promotes text understanding, determines the formation of adaptive strategies of behavior and reduces the probability of occurrence of stereotyped and maladaptation strategies. The forming activities include training for developing creative abilities, in which group discussion, psychotechnical and psychotherapeutic exercises, elements of psychoanalysis (psychoanalysis, symbol-drama) are used. The paper explores and discusses a concept of personal reflection, which has been used as a means of forming culture of perception of the scientific text during 2019-2020 among the students of the Humanities Faculty at Khmelnytsky National University, Ukraine. In conclusion, the author emphasizes the guided questions for the development of personal reflection as a means of forming culture of perception of the scientific text by humanitarians. Besides, the paper lists and explores benefits and drawbacks of interpretation levels (scientific, emotional-sensitive, creative) and their relations due to the components of intellect, strategies of interpreted behavior, success of educational and professional activity and creativity.*

Keywords: *scientific text; perception; reflection; creativity; intellect; interpretation.*

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1. Introduction

The culture of scientific text perception combines in itself intellectual, emotional and creative characteristics. The higher the level of development of these characteristics of the person is, the more successful text understanding is. The specificity of the humanitarian direction of professional activity predetermines the necessity of creative understanding of scientific text symbols and further intergration of knowledge into the general system of knowledge with the aim of making corresponding skills.

The basis of successful interpretation is creation of general picture of the researched scientific text by means of understanding the symbols used by the author.

That is why, research into the development of personal reflection and, in particular, the peculiarities of perception of scientific text by students of Humanities is of particular interest to psychology. Scientific text can be regarded as a set of specific social — psychological techniques and methods of influencing the consciousness of the individual (the so-called meaning techniques) in order to form a creative behavior and personal reflection. The process and the result of text understanding depend on some subjective factors (the recipient experience, that is apperception, subjective state at the time of reception, the cultural and historical context) and some objective factors (textual or semantic dominants) (Soleimani & Matin, 2012).

Personal reflection arises as a present, distinguishing feature of a person, one of the most important properties of consciousness and thinking (Rudenok et al., 2020). Interest in reflection is determined by the tendencies of contemporary culture. Significant accumulation of knowledge, domination of subject knowledge (with the prevalence of analytical methods) lead to apperceptive alienation. This determines the need to search the place for a person in the produced knowledge and culture, reveals reflection as a vital necessary function. Human activity mediates both involuntary skills (driven by socialization) and creative processes that require reassessment of the situation, established ways of interaction and their own place in the environment. Our present day is characterized by a high degree of variability of cultural influences, a continuous change in requirements, priorities, guidelines, values. This situation of activity creates an objective need for the implementation of reflection, which is intended to reveal the adaptive, self-actualizing possibilities of the person and those personal, core qualities that determine self-worth and must be preserved in the processes of social expression.

The analysis of recent researches and publications, which addresses and scrutinizes the outlined problems, testifies that modern scientists actively emphasize the importance of studying issues of interpretation, psychological theories of the text and peculiarities of perception and understanding of foreign language (Chepeleva, 2003); principles of system approach and methods of system analysis due to the study of mental development of the personality (Maksimenko, 2000); results of the research of epistemological characteristics of reflection and their manifestation in cognition processes (Piazhe, 2001); research of reflection as the phenomenon of communication (Leontev, 1983). Despite the number of works devoted to reflection, we note that this topic, having vital importance to the psycholinguistics, is still not disclosed in the scientific and psychological analysis. Interpretation of the phenomenon of reflection as a means of forming a culture of scientific text is marked by considerable diversity. That is why the need for theoretical development of the phenomena remains, in particular, in the refinement of complicated concepts of description and cognition and also in the development of new forming measures to promote the formation of culture of the scientific text perception.

Therefore, it can be argued that the relevance of our research is determined by the extraordinary growth of the role of the culture of the scientific language in the development of reflection, the formation and the learned positive linguistic behavior of modern specialists, their ability to critical thinking, scientific substantiation and the creative application of methods of cognition, abilities to interpret scientific concepts and theories, isolate and process (analyze, synthesize, classify, systematize) the necessary professional scientific information, seek self-development and improvement of professional qualities.

Based on the above, **the purpose of the paper** is to reveal the influence of the process of perception of scientific texts on the process of professional formation and development of personal reflection by students of humanities.

To achieve this goal, **the following task** is foreseen: to test the program of development of creative abilities (developed by us) during the process of understanding the scientific text in order to increase the success of educational and professional activity by students of higher educational institutions.

2. Methods and methodology of research

To realize the given task in the paper, an empirical research (forming experiment) was used. To carry out the forming activities, the participants of the experiment were divided into 2 groups (experimental and control), which consisted of 61 and 62 students. The forming activities took place during the 2019-2020 academic year and included a training on the development of creative abilities. The training program consisted of methodological and instrumental parts.

1. The methodological part solved the following tasks: a) the formation of rules for participation in the training; b) actualization of knowledge about the person and his professional activity, in particular, professional formation; c) review of the influence of creativity on the process of professional activity; d) disclosure of factors of successful professional development. The training included: group discussion, psychotechnical and psychotherapeutic exercises, elements of psychoanalysis (psychoanalysis, symbol-drama).

2. The instrumental part consisted of three blocks, aimed at forming a constructive assessment of the situation: Block 1 "Introduction" foresaw the definition of the psychological basis for the interpretation of scientific text during the process of educational and professional activities of students of humanities;

Block 2 "The success of educational and professional activity" included an introduction to the design of various levels of professional performance and their relationship with the individual psychological characteristics of students (in particular, creative and intellectual ones);

Block 3 "Strategy levels of interpretation during the process of educational and professional activity" combined exercises on the development of reflection in terms of interpretation of scientific text by means of creative self-realization.

Each block, depending on the purpose of the lesson, included: a) theoretical overview of the problems associated with educational and professional activity and peculiarities of interpretation; b) teaching different levels of interpretation; c) an overview of reflexive experiences, their verbalization and the formation of a culture of perception of the foreign scientific text.

Each lesson lasted for two or three hours. The general logics of training work involved forty lessons is presented in Table 1.

Table 1. Training work

Lesson #	Lesson Topic
Block 1. "Introduction".	
1.	Developing skills in the training group.
2.	Actualization of skills of reflection of professional activity.
3.	Psychological preconditions for successful psychological and pedagogical activity.
4-5.	Development of ideas about the importance of text interpretation and understanding in the process of educational and professional activity.
6.	Consolidation of skills of reflection of educational and professional activity
Block 2. "The success of educational and professional activity"	
7-8.	General features of models of educational and professional activity of representatives of humanitarians.
9-10.	The development of attentiveness to the interpreted text is the key to the success of its understanding.
11.	Means of forming the success of understanding the text.
12.	Developing the need for creative understanding.
13.	Peculiarities of experiencing the need for creative understanding while overcoming psychological barriers.
14.	Constructive interaction as a basic component of the professional activity of humanitarians.
15-16.	Features of professional reflection.
17.	Creative understanding as factor in preventing professional conflicts.
18.	Consolidating the skills of professional reflection.
19-20.	Updating perceptions of professional engagement.
Block 3 "Strategy levels of interpretation during the process of educational and professional activity"	
21.	Training of linguistic interaction skills.
22.	Consolidation of skills of linguistic interaction by means of development of reflection.
23.	Developing empathy skills in the process of interpreting and understanding the text.
24.	Consolidation of skills of formation of professional self-presentation by means of nonverbal character.
25-26.	Overcoming stereotypical constructs of professional self-presentation.
27.	Developing skills to prevent high levels of anxiety in educational and professional activities.
28.	Emotional and volitional prerequisites of formation of success of educational and professional activity.

Lesson #	Lesson Topic
29-30.	Consolidation of skills of success of educational and professional activity by means of overcoming high level of anxiety.
31.	Development of active listening skills in the process of educational and professional activity.
32.	Formation of psychological resistance to external influences in the process of educational and professional activity.
33.	Consolidation of skills of constructive resolution of conflicts of professional activity.
34.	Prevention of conflicts regarding the professional ethics of humanitarians.
35.	Creativity — prerequisite for professional self-development of the individual.
36.	Creativity strategies in humanitarian activities.
37-38.	Creative self-presentation in the process of educational and pedagogical activity.
39.	Establishing the creative skills acquired in the course of training work.
40.	Fixing the skills in regulating anxiety in the process of educational and professional activity.

While developing the program, we took into account the effectiveness of group work, as source of actualization and development of means of constructive thinking for practical psychologists and the nature of the corresponding reflexive experiences that accompany the process of interpretation.

Training program is “Development of reflection of creative interpretation and understanding of scientific text during the process of educational and professional activity”.

Its aim is to promote the formation of creative level of interpretation during the process of educational and professional activity.

Its tasks are: 1) to form a presentation on effective professional activity for the participants of the training; 2) to update the skills of reflection during the process of interpretation and understanding of scientific text; 3) to develop skills of reflection of professional activity by expanding the limits of professional self-consciousness; 4) to promote the formation of creative level of interpretation by means of overcoming anxiety and developing an adaptive (creative behavior) strategy.

Basic tips for the trainer are: 1) work in the group should be based on the principles of voluntariness and participants’ trust in each other; 2) if necessary, the trainer should apply the forms of facilitating the training work;

3) work should not be departed from accepted rules, or the rules should be adjusted on the basis of appropriate group decisions.

3. Research results

The applied training program proved to be effective. Its contents contributed to the development of the students' (with different levels of interpretation of the scientific text) understanding and the integration of text contents through the formation of adaptive behavior strategies.

At the end of the forming activities, a psychodiagnostic testing of representatives of control and experimental groups was carried out to determine the effectiveness of the formation research. These activities took place in September 2019 — October 2020. Comparison of indicators of initial and repeated diagnostic tests made it possible to detect significant positive changes in the studied indicators among representatives of experimental groups. A comparative analysis of the success of the forming activities was carried out according to the following indicators: 1) the level of interpretation; 2) the success of educational and professional activity; 3) the strategies of educational and professional activities.

1. As the result of the forming activity, the redistribution of students by interpretation levels took place (Table 2).

Table 2. Dynamics of indicators of levels of interpretation of scientific text in relation to the components of intellect (in%)

#	Level of interpretation	Components of intellect							
		Verbal abilities		Mathematical abilities		Constructional abilities		Theoretical-practical abilities	
		Control group	Experimental group	Control group	Experimental group	Control group	Experimental group	Control group	Experimental group
1	scientific	26,5	23	74,2	57	39,7	29,2	55,8	53,4
2	emotional-sensitive	15,4	12,8	8,1	4,6	32,7	21,3	24,9	14,1
3	creative	58,1	64,2	17,7	38,4	28,6	49,5	19,3	32,5

Changes in the redistribution of students' ratio by level of interpretation are related to the increasing orientation of students to the high integration of new knowledge by means of creative interpretation. Reduction of humanitarians who are focused on emotional-sensitive understanding is conditioned by reorientation to the scientific and creative interpretation of the text contents.

We mean reflexion as a conscious and arbitrary process of the subject's comprehension and rethinking of essential intrinsic features, possibilities and achievements, as well as his/her relations with the social world (the manifestation of communication with other people and the active assimilation of the norms and means of various activities). The reflection elements are: a) the informative component that characterizes its topical aspect and b) the dynamic component, associated with the way of its emergence. The informative side of reflection is determined by its subject, depending on which its both main types are distinguished — internal (intrapsychic, autoreflexion) and external (interpersonal) reflexion. The first one relates to reflexivity as the ability to self-perception of the contents of own psyche and its analysis, the second one — with the ability to construct and reproduce (consciously) the direction of thought, feelings of the subject of communication. They involve both the ability to “take the place of another one”, and the mechanisms of projection, identification, empathy. The dynamic component of reflection is related to the moment of the launch of this process, that is, with the reflexive output, as well as, the processes of transition from level to level — in other words, with the process of reflexive dives and transitions on reflexive levels.

Reflection of professional formation includes the following aspects: topical (reflection of the structure of professional interests, goals, expectations of the individual; reflection of educational and professional actions, results, achievements; reflection of the qualities of the professional); informative (the result of self-reliance of personality in the process of professionalization, which is represented in the form of general knowledge of “I”, the problems and contradictions of professional formation, sensory experience and self-assessment of the identified, conscious structural units of “I”, etc.); operational (the main forms of intellectual, reflexive and practical activity to find, analyze, synthesize, saturate the contents of “I” — self-knowledge, self-esteem, self-generalization, etc.).

Reflection as an ability to self-knowledge and self-analysis of its own internal mental activity, mental qualities and conditions is one of the most important indicators of subjectivity of the specialist.

2. Transformation of the indicators of interpretation has led to the corresponding transformation of strategies of students' behavior (Table 3).

Table 3. Distribution of strategies of interpretative behavior before and after forming activities (in%)

№	Level of interpretation	Strategies of interpreted behaviour					
		adaptation		stereotyping		disadaptation	
		Control group	Experimental group	Control group	Experimental group	Control group	Experimental group
1	scientific	36,4	2,8	41,4	45,5	28,8	14,4
2	emotional-sensitive	18,5	4,7	46,4	46,9	65,6	83,2
3	creative	45,1	92,5	12,2	7,6	5,6	2,4

The increase of students with the adaptive strategy of interpreting the scientific text is connected with the awareness of the need for successful professional development. The increase of humanitarians focused on the strategy of stereotyping indicates the need for standardization of professional knowledge, compliance with stereotyped patterns of educational and professional behavior. Reduction of students with the maladaptation strategy, indicates about their responsibility for their own professional activity.

3. There is a decrease in the level of situational anxiety among the students. Thus, there is the increased number of students with reactive anxiety in comparison with the reduction of students with situational anxiety. The reorientation of students from maladaptation to adaptive behavior strategies has contributed to the increased confidence in the success of educational and professional activity and the corresponding reduction of anxiety.

4. It is stated that the general success of the educational-professional activities and creativity of humanitarians increases (Table 4). The increase of students with high and medium creative level of success is due to the orientation towards the creative level of interpretation of the scientific text.

Reduction of students with low non-productive levels of success is a consequence of their awareness of the growing value of knowledge and the need for the integration of educational information.

Table 4. Dynamics of relations of indicators of the interpretation level due to the success of educational-professional activity and creativity (in%)

№	Level of interpretation	Success of educational-professional activity due to the level of creativity					
		Creative				Non creative	
		High		Average / not stable		Low	
		Control group	Experimental group	Control group	Experimental group	Control group	Experimental group
1	scientific	16,1	8,4	26,5	39,8	69,2	63
2	emotional-sensitive	11,5	6,4	49,4	15,6	15,6	14,9
3	creative	72,4	85,2	24,1	54,6	15,2	22,1

So, after the forming activity, the interpretation level has undergone qualitative changes. The development of creative abilities contributes to the success of the educational and professional activity of students of Humanities. The success of forming activities makes it possible to conclude that the development of creative abilities is a leading factor in the implementation of effective educational and professional activity of students of Humanities.

The assessment of the results of forming activities gives grounds to speak about the effectiveness of the used tools. Awareness of the need for successful professional development became the basis for reorientation of students to the adaptive strategy of educational and professional activities. The contents of these strategies is characterized by the high level of creative interpretation and low level of situational anxiety.

According to researchers Miklyaeva et al. (2003), adaptation should be understood as the process of bringing the main parameters, their social

and personal character into a state of dynamic equilibrium with the new conditions of the university environment as an external factor in relation to the student. Adaptation is a continuous process, which does not stop for a day. This process also occurs with fluctuations (there can be transmissions into such various spheres as activity, communication, self-consciousness during the day).

The non-behaviorist definition of adaptation is substantiated mainly in the works of I. Eysenck and his followers. They define adaptation in two ways: a) as a condition in which the needs of the individual (on one hand) and the requirements of the environment (on another one) are completely satisfied; b) the process by which this harmonious state is achieved.

The low level of anxiety is an indicator of successful activity of humanitarians. With this level of anxiety, profound contents of anxious experiences provide the effective performance of the educational and professional activity of students in the conditions of educational activity.

The high level of anxiety puts back the activity of the personality and prevents from effective educational and professional self-regulation. The main negative sides of influence of high level of anxiety on the behavior can be characterized in such a way: 1) personality with high level of anxiety is inclined to perceive environment that hides threat and danger to a much greater extent than the personality with the low level of anxiety; 2) the high level of anxiety pauses threat for the mental health of personality and promotes the development of neurotic states. Researches proved that students with high level of anxiety present themselves as a potentially unsuccessful group and need the social control from the preventive services; 3) the high level of anxiety influences the result of activity negatively: 4) anxiety, in the number of some individual-psychological peculiarities, makes an essential influence on the professional direction, in particular, reducing the level of personality demands: 5) anxiety influences the stability of behavior and manifestation of skills of self-control differently.

Under the low level of anxiety, we can observe the preservation of confidence, absence of nervousness (in case of mistakes — adequate attitude and desire to correct them), but high level of anxiety is manifested in the behavior by means of pressure increase, irritation, intolerance, self-doubt and so on.

Experiences of different emotions and feelings influence the formation of student's personality, reconstruction of his views, attitude to the reality. High intensity (in particular, of intellectual feelings), variety, transmissions from one to the other one, acceleration of high feelings formation are characteristics for students' emotional processes in education.

The feeling of responsibility for success, the feeling of something new and etc. have a particular role for the efficiency of student's activity. Depending on the level of individual peculiarities of personality and attitude to the valuation, students feel joy, easiness, weakness or vice versa emptiness, displeasure and anxiety.

Performance of educational, social and other tasks of activity requires the definition of the aim, decision making, difficulties overcoming, mobilization of forces, will revealing. That's why, the high level of self-regulation, the skill to control behavior are important psychological precondition of student's successful activity.

Psychological self-regulation is to manage your emotions, feelings, ideas, attention and etc. This is possible thanks to the help of physical actions, full concentration, imaginative self-direction, rational self-analysis and other methods of self-regulation aimed at the development of creativity of the individual (Chesnokova, 1982). The process of creativity is directly related to the process of thinking, which is characterized by a number of features. At first, creative thinking is plastic. Creative people offer a lot of solutions in the case when an ordinary person can find one or two solutions. Secondly, it is mobile: it is not difficult for it to move from one aspect of the problem to another one, without departing from one point of view. And finally, creative thinking is original. It generates unexpected, uncommonplace, unusual decisions.

In the activity aimed at the creative development of the student, the teacher must take into account a number of features: a) individual abilities are not isolated, they are interacted in relation to the goal as something integral; b) the degree of integration of abilities (in a system of concrete activity) can be individual. It means that the effectiveness of the same productivity of separate functions of different people will be different; c) each individual is also characterized by an indicator of the integration of individual abilities in relation to various activities; d) the effectiveness of the development of creative abilities of students (during the process of learning) depends, to a large extent, on the consideration of the main regularities and stages of the creative process (when creating the creative situation). The patterns of the creative process, the development of creative personality qualities impose certain requirements on the technology of teaching and developing the contents of educational and cognitive activities of the student (Tihomirov, 1981).

Conclusions

The results of the forming experiment testify about the existence of positive dynamics of the indicators of the level of interpretation of the scientific text, the success of the educational-professional activities and strategies.

Prevalence of adaptive behavior strategies over stereotyped and maladaptive ones is associated with the focus on the creative level of interpretation of the text. Such strategies are implemented by means of increasing the activity of students in adapting to the conditions of educational and professional activities, effective attitude to the surrounding reality, awareness of the motives of their own behavior and the development of effective strategies for their implementation; independent consideration of accuracy, speed, completeness, emotionality, ability to select, analyze, use information during the process of educational and professional activity, comprehension of information, the formation of scientific concepts and the development of personal and professional reflection.

Increasing the level of creativity and self-regulation of personality behavior has contributed to the reduction of situational anxiety among the investigators and the development of a constructive response structure to objective external influence (reactive anxiety).

The orientation of the students' educational and professional activity on creativity, in general, and the creative interpretation of the symbolic components of the scientific text, in particular, has become possible by means of developing the skills of reflection of creative abilities.

Creative abilities are a complex structure that includes emotional culture, a system of cultural-logical, vocational and pedagogical knowledge, a broad general cultural erudition, genetic predestination, outlook, imaginative thinking, the ability to model a variety of ways of creative activity.

The formed skills of creative self-realization of students during the process of interpretation and understanding contribute to the successful integration of new knowledge into the general system of knowledge of specialists, thus forming the basis for the success of educational and professional activity in general.

References

- Chepeleva, N.V. (2003). Rozuminnya ta interpretaciya osoby`stisnogo dosvidu v konteksti psy`xologichnoyi germeneyty`ky` [Understanding and interpretation of the personal experience in the context of psychological

- hermeneutics]. *Aktual'ni problemy` suchasnoyi ukrayins`koyi psy`xologiyi: Naukovi zapysky` Instytutu psy`xologiyi im. G.S. Kostyuka APN Ukrayiny`* [Actual problems of modern Ukrainian psychology: scientific notes of the Institute of Psychology of the Academy of Pedagogical Sciences of Ukraine named after G.S. Kostinuk], 23, 15–24.
- Chesnokova, I.I. (1982). Samosoznanie, samoregulyaciya, samodeterminaciya lichnosti [Self-consciousness, self-regulation, self-determination of personality]. *Problema psibologii lichnosti* [Problems of personality psychology]. M.: Pressa.
- Leontev, A.N. (1983). *Izbrannyye psibologicheskie trudy* [Elected psychological works]. (Vols. 1-2). M.: Pedagogika.
- Maksimenko, S.D. (2000). *Geneticheskaya psibologiya (metodologicheskaya refleksiya* [Genetic psychology (methodological reflection on problems of development in psychology)]. M.: Refl-buk.
- Miklyaeva, A.V., Rumyantseva, P.V., Tupicyna, I.A., Tuzhikova, E.S. (2003). Professionalnaya adaptaciya molodyh specialistov-psihologov na razlichnyh etapah vkhozhdeniya v professiyu [Professional adaptation of young psychologists at various stages of entering the profession]. *Integrativnyy podhod v psibologii: Sb. nauchnykh statej* [Integrative Approach in Psychology: collection of scientific articles]. SPb.: Izd-vo RGPU im. A.I. Gercena.
- Piazhe, Z. (2001). *Teoriya, eksperimenty, diskussiya* [Theory, Experiments, Discussion]. In Burmens'kaya G.V. & Obuhova L.V. (Eds.), M.: Gardariki.
- Rudenok, A., Zakharasevych, N., Antonova, Z., Zhylovska, T., & Falynska, Z. (2020). Assessing the Level of Verbal Intelligence in Preschool Children as Important Element of Cognitive Abilities. *BRAIN. Broad Research in Artificial Intelligence and Neuroscience*, 11(2), 189-198. <https://doi.org/10.18662/brain/11.2/82>
- Soleimani, H., & Matin, F. S. (2012). On the Relationship between Right- brain and Left- brain Dominance and Reading Comprehension Test Performance of Iranian EFL Learners. *BRAIN. Broad Research in Artificial Intelligence and Neuroscience*, 3(2), pp. 43-58. <https://lumenpublishing.com/journals/index.php/brain/article/view/1914>
- Tihomirov, O.L. (1984). *Psibologiya myshleniya* [Psychology of thinking]. M.: Prosveshchenie.