

Anticipation and Prediction Interrelation Neuropsychological Mechanisms at Youthful Age

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Abstract: Anticipation is an ability to work and make certain decisions with certain temporarily spatial anticipation on expected events. In our understanding of anticipation as immanent property of mental reflection process, effects of temporary and spatial anticipation of events are included as well as selectivity of environmental influences, activity orientation, behavior. Analysis of anticipation development problem with age showed that process of maturing and consolidation of anticipation in ontogenesis is carried out under all laws of mentality maturing and at adequate development mechanisms of anticipation are formed by 11-13 years. Carried-out analysis of anticipation phenomenon shows that the last penetrates all forms and levels of mental reality reflection has adaptive dis-adaptive character and at intellectual or mental insolvency anticipation insolvency is observed.

Key words: Anticipation, probabilistic forecasting, neuropsychological mechanisms, youthful age, behavioral deviations

INTRODUCTION

Traditionally, anticipation-predictive activity of person in psychology is studied within two methodological approaches. First as a way of action possible results representation before its implementation (Vundt) (Steinhausen, 1981). Second as content of “advancing reflection” (Anokhin). Conceptualizing reasonings within theory of “advancing reflection” and cultural and historical theory (Vygotsky and Luriya), we proceeded from understanding of that all Gnostic and person's motor activity is regulated by anticipation-predictive processes which, in turn, have complex neuropsychological nature (Solobutina, 2014; Abitov, 2015). Also understanding that in norm at youthful age all system of neuropsychological regulation anticipation-predictive processes completely developed (Akhmetzyanova, 2014; Astapov, 1994).

MATERIALS AND METHODS

Problem readiness degree assessment: Carrying out an assessment of anticipation and forecasting neuro-psychological regulation problem readiness degree, we used the bibliometrical analysis. Bibliometrical analysis was carried out on information space scientifically-electronic library elibraru on keywords (anticipation, forecasting) in psychology section (depth of information search made 10 years) (Astapov, 1994;

Artemyeva, 2014). Total amount of scientific publications, for the end of 2014 on anticipation phenomenon made 56, on forecasting phenomenon 883. According to dynamics of scientific researches on anticipation and forecasting phenomena during 2004-2013 the following tendencies are revealed: first, research activity in study of anticipation and forecasting phenomena has monotonously increasing character (on anticipation phenomenon till 2007 publications are not submitted, since 2007 their quantity increased from 4 publications before 17 publications in 2013; the number of publications on anticipation research increased from 9 publications in 2004 to 171 in 2013) (Wallin, 1955). Secondly, range of forecasting phenomenon researches in Russian Index of Scientific Citing (RISC) system it to increase by 15 times the volume of researches on anticipation (researches of forecasting phenomenon are presented in 833 publications; anticipation phenomenon in 56 publications). Within bibliometrical analysis thematic sectoring of anticipation and forecasting phenomena researches by criterion of ontogenetical development stages was also carried out. The majority of anticipation phenomena researches (75% of researches) and forecasting (68% of researches) are presented without age differentiation (Caplan and Sadock, 1989; Richard, 1997). Researches of anticipation phenomenon of are not presented at two age stages: in the period of younger school age and an old age; unlike phenomenon of forecasting which number of researches makes on 1%.

RESULTS AND DISCUSSION

Research of anticipation psychological mechanisms: In setting and solving problems of anticipation and forecasting in norm and at behavioral deviations psychological mechanisms study there is at least, a need of defining the ontogenetical regularities of their realization that assumes studying of standard anticipation activity and also research of basic neuropsychological level of anticipation and forecasting regulation (Sergienko, 1988, 1989). Research objective: anticipation and prediction interrelation neuro-psychological mechanisms at youthful age; interrelation neuropsychological mechanisms of anticipation and forecasting at youthful age study. Object of research: organization structure of anticipation and forecasting at youthful age interrelation neuropsychological regulation. Research was carried out on bases of higher educational institutions (SEI VPO Kursk State Medical University (KGMU), Kursk Institute of Social Education (KISE) (RGSU branch), Kazan' State University, Institute of psychology and education), the total amount of selection made 286 young men 140 and girls 146 at the age of 18-21 years. Selections were equalized on training profile in an equal ratio (medical, humanitarian, technical). Psychodiagnostic base of research was made by techniques: "Anticipation solvency test" (Mendelevic, 2003); technique test "Ability to forecasting" (Regush) on scales: depth, analyticity, sensibleness, flexibility, prospects, substantiality. Neuropsychological tests: schematized drawing without details; road Money test; ignoring of the left, right half of a vision field. Test choice was carried out on their functional basis and also by criterion of localization. Statistical processing was carried out with use of quantitative and high-quality data processing methods: indicators of average tendencies (average value, standard deviation), methods of multidimensional statistics (r-criterion of rang correlation of Spirmen).

At 92.7% of examinee selection anticipation solvency (in absolute measures predictive competence is established if indicators exceed 241 points) (Solobutina, 2014) is established. Average values made 252.93 ± 9.4 . Interrelation study of anticipation features and predictive parameters as well as neuropsychological mechanisms of this interrelation was carried out on selection of examinees with an anticipation solvency. Spatial anticipation interrelation assessment and parameters of forecasting was carried out by correlation analysis method. As a result of research significant directly proportional interrelation of an anticipation and parameters of forecasting is established ($p \leq 0.05$): depth ($r = 0.38^*$),

analyticity ($r = 0.54^*$), sensibleness ($r = 0.41^*$), flexibility ($r = 0.78^*$), prospects ($r = 0.65^*$), substantiality ($r = 0.59^*$). Establishment of interrelation forecasting parameters and neuropsychological tests taking into account their functional localization: frontal departments of brain (ignoring of the left, right half of a vision field), parietal departments of brain (Road Money test), occipital departments of brain (Schematized drawing without details). Directly proportional interrelation between the following parameters is revealed: functional orientation of frontal organization processes provides predictive parameters of analyticity ($r = 0.61^*$), sensibleness ($r = 0.42^*$), substantiality ($r = 0.39^*$) and prospects ($r = 0.56^*$). Functional orientation of parietal organization processes provides predictive flexibility ($r = 0.32^*$) and prospects ($r = 0.41^*$); functional orientation of occipital organization processes also provides flexibility parameters ($r = 0.47^*$) and prospects ($r = 0.54^*$). According to the rule of transitivity, interrelation of anticipation features at youthful age with neuropsychological processes is realized through forecasting parameters, providing neuro-psychological mechanisms of anticipation-predictive features regulation.

Summary: Anticipation solvency at youthful age (without gender differentiation) is shown at 92.7% of examinees. Degree of expressiveness and orientation of predictive parameters interrelations and anticipation of features indicate the fact of anticipation-predictive system at youthful age coherence. On neuropsychological level analyticity, sensibleness and substantiality of predictive parameters is regulated by processes of frontal organization; flexibility processes of occipital and parietal localization; parameter of prospects is supported by neuropsychological processes of frontal, parietal and occipital localization. Thus, revealed tendency of neuropsychological regulation of anticipation-predictive features interrelation can be considered ontogenetical reference point of development norm at youthful age.

CONCLUSION

In the study, results of psychological anticipation and forecasting mechanisms in norm are described and at behavioral deviations, ontogenetical regularities of their realization that assumes standard anticipation activity study as well as research of basic neuropsychological anticipation and forecasting regulation level are defined. Revealed tendency of neuropsychological anticipation-predictive features interrelation regulation can be considered as ontogenetical reference point of development norm of youthful age.

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