

---

*Special Theme of the Issue.*  
*National IQs and Achievements*

---

**MACROPSYCHOLOGY OF INTELLIGENCE:  
THROUGH DISPUTES TO THEORETICAL DEPTH**

**D.V. USHAKOV<sup>a</sup>, A.A. GRIGORIEV<sup>a</sup>**

*<sup>a</sup>Institute of Psychology of Russian Academy of Sciences, 13 build. 1, Yaroslavskaya str., Moscow, 129366, Russian Federation*

**Abstract**

This article analyses methodological and ethical problems in the field of the macropsychology of intelligence and reviews the studies reported in the present issue of the journal. Macropsychology of intelligence studies relationships of intelligence with economic, military, social, and other achievements of large social groups, (populations of countries or regions within individual countries). These relationships were shown in numerous studies, the most important of which is that of Lynn and Vanhanen. The main problem with these studies is as follows: research in this domain can lead to a biologizing picture of the world in which a population's genetics is directly associated with economic achievement. This possibility caused an emotional reaction in the academic community to the study of Lynn and Vanhanen and triggered superficial research in the field. In this situation, there is a need for a gradual theoretical deepening while separating research from politics. On the other hand, empirical evidence points to the complex nature of the relationship of intelligence and economic achievements: it is non-linear; the residuals of regression dependence grow linearly with the increase of national intelligence. The directions of future studies are outlined in the article: the development of accurate models of "transformation" of intellectual abilities into economic and social achievements, further research into the reproduction of geographical patterns of intelligence and the study of the correlation between the extent of different abilities and achievements in selected areas. The clarification of empirical data and theoretical generalizations are inherent to papers presented in this issue.

**Key words:** intelligence, abilities, macropsychology, economic achievements, human capital.

The present issue of this journal examines an unusual aspect of intelligence. Psychologists are accustomed to

working with intelligence at individual levels as with a hierarchical construct that evaluates the variety of cognitive

abilities. Intelligence can be reliably measured and appears to be a good predictor of different life achievements: from academic attainment to professional status and health in old age.

However, current studies more clearly highlight another aspect of intelligence, one that can be described as macropsychological. The term “macropsychology” was used by A.V. Yurevich to give a name to a branch of science that studies psychological characteristics and processes of large social groups (for example, of entire regions and countries) (Yurevich, Ushakov, Tsapenko, 2007).

The macropsychological meaning is acquired by those individual and personal characteristics, the level of expression of which in people in certain historical moments in different countries and regions affects the behavior of large social groups and their military, social, economic and other achievements. Perhaps achievement motivation was the property of human nature first systematically targeted by macropsychological analysis. D. McClelland and later H. Heckhausen showed that at different times a population’s achievement motivation in various countries (as measured by content analysis of documentation) predicts subsequent achievements of these countries, such as international trade and economic activities, patent activity and development of energy sector.

In macropsychological studies of intelligence, the greatest merit undoubtedly belongs to Robert Lynn. In Lynn’s first works in the field of “the social ecology of intelligence” (as he originally called this line of research) intelligence was associated with “social, economic, demographic and epidemiological characteristics” primarily at the regional level within individual

countries (Lynn, 1979, 1980). Later Lynn and Vanhanen gathered data on intelligence studies in different parts of the globe and published a book where the same dependence was shown on an inter-country level.

At first the academic community responded to the study of Lynn and Vanhanen emotionally. The main problem causing concern was as follows: it is known from works on psychogenetics that a high heritability is inherent to intelligence. According to most experts, genetics accounts for more than half of its variance. Molecular and genetic mechanisms of this heritability remain obscure, yet are still persistently studied. As recent reports show the geographical distribution of certain alleles in people is associated with educational achievements in the respective regions (Piffer, 2013). Combined with the data on inter-country and racial differences of intellect, the impact of intelligence on socio-economic indicators carries a temptation to present a biologizing picture of the world in which the population’s genetics is directly associated with economic achievement. We remember that such statements cost the academic position even of such an outstanding scientist as the Nobel laureate James Watson, the discoverer of the DNA double helix.

This way of interpreting the results stirred up the scientific and pseudo-scientific community, and in western periodicals it began a fierce and sometimes abusive discussion. “Serving the Muses tolerates no fuss,” and the tension, having drawn attention to the problem, made research efforts rather focused on the surface. The first efforts were aimed at either refuting or proving Lynn and Vanhanen’s results.

At present numerous studies leave little doubt that the intelligence of countries and regions is not solely associated with economic characteristics (such as GDP or per capita income), but also involves a number of other variables. It has been shown that a population's intelligence correlates with the quality of health care, life expectancy in the country and infant mortality. The relationship of intelligence to political freedoms in the country, religiosity, proneness to liberalism, etc. has been also demonstrated. The set of studies gives an impression that it is more difficult to find those properties of countries that are not related to intelligence, than those associated with it.

Nevertheless, a further understanding of the problem leads to a gradual theoretical deepening in parallel with an increasing need to separate research from politics. This would mean that politics should not interfere in scientific discourse. And that scientists should abstain from making political conclusions. At the same time, as noted by A. Hunt, it is reasonable to consider the issue of increasing reliability criteria for those studies' findings that may have political or other highly socially loaded interpretations. In other words, the 5% usual margin of possible error (that is recognized as acceptable for socially neutral findings in psychological research) should be greatly reduced when it comes to topics such as, for example, genetic predetermination of socially significant behavior.

The theoretical deepening is associated with being aware of the fact that studying the impact of intelligence on the welfare of countries implies a psychological reality to the concept of

human capital as introduced by economists. Psychologists gain an opportunity to explore cognitive abilities and other personal characteristics of people that form human capital. Of course the perspective of psychologists and their instrumental abilities are completely different when compared to those of economists. Psychologists have diagnostic methods allowing the assessment of the extent of individual psychological properties in people. An opportunity arises to explore the origin of these properties, their genetic and environmental components, mechanisms of implementation in behavior and more.

Economists work on another plane: they describe processes taking place in a society that are concerned with human qualities valuable from the economic standpoint, their acquisition and realization in the products of labor. Here some interesting interdisciplinary parallels occur. For example, the Chicago School emphasized the acquired aspect of human abilities, investments in their acquisition and their products in the economic activity. Other economists stressed the natural character of human abilities, considering education as not only and not so much as the acquisition of necessary competences, but also as a kind of test of abilities, the result of which becomes well-known publically, allowing, *inter alia*, a focus for employers' behavior. In the psychology of abilities there are also the environmental and nativist points of view, with arguments involved becoming quite violent at times.

Of utmost interesting in this situation is a potential for interdisciplinary cooperation between economists and psychologists, which would highlight the multi-dimensional picture of intelligence

functioning in the community. Psychologists concentrate on the micro-level of analysis: on activities of people aimed at addressing various problems, while economists explore the integration of these activities into a public system. The combination of these two planes reveals many new aspects in both of them.

Classifying a number of sections under the category of macropsychology actually means for psychology the recognition of the federal importance of its subject (Zhuravlev, Ushakov, 2009; Zhuravlev, Ushakov, Yurevich, 2013a, 2013b, 2013c). In this case it is clear that national intelligence affects the competitiveness of a country, with ensuing practical consequences in terms of improving both the assessment tools and activities aimed at the development.

In this context macropsychology of intelligence faces two major challenges: firstly, the search for more artful laws; secondly, an interdisciplinary theoretical understanding of the entire data set.

The relationship of intelligence and economic achievements seems very simple as a concept. It appears to be natural that more intelligent people are capable of greater achievements, and so it is tempting not to do any further analysis of this phenomenon. However, the reality is far from being simple, as a closer look at the empirical evidence shows. First of all, the non-linear nature of the relationship of national intelligence with economic achievements should be noted. The relationship is well approximated by a quadratic dependence. Interestingly, the connection of intelligence with other variables (for example, those in the field of healthcare) is closer to a linear relationship. In addition, the residuals of regression

dependence grow linearly with the increase of national intelligence.

There are no easy explanations for these phenomena. Meanwhile, the reasons behind them are quite relevant for the assessment of the current state of Russia, whose economic achievements do not correspond to the high level of intellectual potential.

Hence the need to provide accurate models (those allowing a mathematical description) that could describe how the intellectual abilities of people are “transformed” into the economic and social achievements of their countries.

Data on the geographical patterns of intelligence reproduced over a number of generations is both interesting and not quite obvious. For example, it has been shown that the State Exam results in different areas of the Moscow region are significantly correlated with literacy rates in the same areas at the end of the XIX century (Grigoriev et al., 2015). Similar results were obtained in various provinces of Russia. How can such a replication be explained? By a variation of geographical conditions determining economic activities? Or maybe by the fact that the reproduced cultural patterns (for example, at the household level) have an impact on intellectual development? There are no final answers yet, though serious theoretical and practical results are expected from research in this direction.

Finally, we should mention one obvious drawback to studying the relationship between intelligence and achievements at a regional level. Almost always links with “intelligence in general” are considered. Meanwhile, there is evidence that populations differ not only in general intelligence, but also in the profile of intellectual abilities.

Studying the correlation of the extent of different abilities with achievements in selected areas at the regional level is a promising direction of work in this area.

The papers presented in this issue should be considered in this context too. In the paper of S.G. Kulivets and D.V. Ushakov, a theoretical approach is proposed to address the influence of cognitive abilities and competencies of people on economic achievements. The concept of problem solving is considered as a mediating link. Capable and competent people rapidly develop economic process when they are faced with very complex economic problems requiring fully their abilities and competences. A country's economic system provides the choice of problems to address. The authors offer a mathematical model to prove their point of view.

In the paper of A.A. Grigoriev a comparison is made of intelligence and personal characteristics as macropsychological predictors of socio-economic attainments in a country. In general, national intelligence turns out to be a stronger predictor. Personal qualities (as valued in an international study (Bartram), but not in another (Schmitt et al.)), combined with data on intelligence, add a certain predictive power in relation to per capita income.

Two papers present results of comparing performance abilities of large social groups. A.A. Grigoriev, I.V. Zhuravlev, Yu.V. Zhuravlev, E.M. Lapteva, I.N. Noss report an approbation of an 18-scale test of general awareness on a Russian sample. The Russian data is compared with results obtained in the

English version of the test applied in the UK. On the whole, the results of the Russian sample were higher than those in Britain in reproducing the total factor structure. In addition distinct differences of indicators of awareness in various fields of knowledge were revealed.

The paper of V. Shibaev and R. Lynn communicates research data on the intelligence of ethnic Russians and Yakuts. No statistically significant difference between the two groups was found.

In the paper of E. Chmykhova, D. Davydov, A. Grigoriev, M. Zirenko and R. Lynn the relationship between educational attainments in regions of the Russian Federation and intelligence (measured by psychological tests) is discussed. Such comparisons across countries (for example, for the international studies PISA and TIMSS) result in very high correlations indicating the intersection of nearly 90% of the variance of the two indicators. However, in this case, the correlation was substantially lower. This once again points to shortcomings within the data available in our country. On the one hand, the State Exam results have not been made public in many Russian regions in the last years. On the other hand, the data of psychological testing of capabilities for different regions of Russia is not systematic.

In general, the papers presented demonstrate major trends in the contemporary studies of macropsychological intelligence: on the one hand, theoretical generalizations are a target; on the other hand, empirical data is clarified.

## References

- Grigoriev, A. A., Lapteva, E. M., & Ushakov, D. V. (2015). The educational performance of Moscow region districts reproduces their literacy level in the XIX century: “mechanisms of the cultural genetics”. *Sibirskii Psikhologicheskii Zhurnal*, 56, 69–85. (in Russian)
- Lynn, R. (1979). The social ecology of intelligence in the British Isles. *British Journal of Social and Clinical Psychology*, 18, 1–12.
- Lynn, R. (1980). The social ecology of intelligence in France. *British Journal of Social and Clinical Psychology*, 19, 325–331.
- Piffer, D. (2013). Factor analysis of population allele frequencies as a simple, novel method of detecting signals of recent polygenic selection: The example of educational attainment and IQ. *Mankind Quarterly*, 54(2), 168–200.
- Yurevich, A. V., Ushakov, D. V., & Tsapenko, I. P. (2007). Quantitative evaluation of the present-day Russian society’s macropsychological state. *Psikhologicheskii Zhurnal*, 28(4), 23–34. (in Russian)
- Zhuravlev, A. L., & Ushakov, D. V. (2009). Education and competitive ability of a nation: Psychological aspects. *Psikhologicheskii Zhurnal*, 30(1), 5–13. (in Russian)
- Zhuravlev, A. L., Ushakov, D. V., & Yurevich, A. V. (2013b). Perspektivy psikhologii v reshenii zadach rossiiskogo obshchestva. Chast 2. Kontseptualnye osnovaniya [Prospects of psychology in solving problems of the Russian society. Part 2. Conceptual Foundations]. *Psikhologicheskii Zhurnal*, 34(2), 70–86.
- Zhuravlev, A. L., Ushakov, D. V., & Yurevich, A. V. (2013a). Prospects of psychology in solving problems of the Russian society. Part 2. Statement of the problem and theoretical-and-methodological objectives. *Psikhologicheskii Zhurnal*, 34(1), 3–14. (in Russian)
- Zhuravlev, A. L., Ushakov, D. V., & Yurevich, A. V. (2013c). Prospects of psychology in solving problems of the Russian society. Part III. Interaction between social institutes and mentality: The ways of optimization. *Psikhologicheskii Zhurnal*, 34(6), 5–25. (in Russian)



Andrei A. Grigoriev – chief research fellow, Institute of Psychology of Russian Academy of Sciences, D.Sc., associate professor.  
Research area: intelligence, individual differences, psycholinguistics.  
E-mail: andrey4002775@yandex.ru



Dmitry V. Ushakov – head of the laboratory of psychology and psychophysiology of creativity, Institute of Psychology of Russian Academy of Sciences, corresponding member of Russian Academy of Sciences, D.Sc., professor.  
Research area: intelligence, creativity, philosophy of psychology.  
E-mail: dv.ushakov@gmail.com

**Макропсихология интеллекта: От эмоций к теоретическим основаниям**Д.В. Ушаков<sup>а</sup>, А.А. Григорьев<sup>а</sup><sup>а</sup> ФГБУН Институт психологии РАН, 129366, Россия, Москва, ул. Ярославская, д. 13, к. 1**Резюме**

В статье анализируются методологические и этические проблемы в области макропсихологии интеллекта и делается обзор работ, помещенных в данном номере журнала. Макропсихология интеллекта изучает связи интеллекта с военными, социальными, экономическими и прочими достижениями больших социальных групп, например, населением стран или регионов внутри отдельных стран. Эти связи были продемонстрированы в многочисленных работах, наиболее важная из которых принадлежит Линну и Ванханену. Основная проблема в связи с этими работами заключается в том, что исследования в данной области могут вести к биологизаторской картине мира, при которой генетика населения напрямую связывается с экономическими успехами. Эта возможность явилась причиной эмоциональной реакции научного сообщества на исследование Линна и Ванханена и вызвала к жизни поверхностные исследования в данной области. В данной ситуации необходимо постепенное теоретическое углубление параллельно с отделением научных исследований от политики. С другой стороны, эмпирические данные указывают на сложный характер связи интеллекта с экономическими достижениями: она нелинейна, остатки регрессионной зависимости линейно увеличиваются с возрастанием национального интеллекта. В статье очерчиваются направления будущих исследований: создание точных моделей «превращения» интеллектуальных способностей в экономические и социальные достижения, дальнейшее изучение воспроизводства географических паттернов интеллекта и исследование на региональном уровне связи выраженности различных способностей с достижениями в отдельных областях. Для статей, помещенных в данном номере журнала, характерны тенденции к теоретическим обобщениям и к уточнению эмпирических данных.

**Ключевые слова:** интеллект, способности, макропсихология, экономические достижения, человеческий капитал.

**Григорьев Андрей Александрович** — главный научный сотрудник, ФГБУН Институт психологии РАН, доктор филологических наук, доцент.

Сфера научных интересов: интеллект, индивидуальные различия, психолингвистика.

Контакты: andrey4002775@yandex.ru

**Ушаков Дмитрий Викторович** — заведующий лабораторией, ФГБУН Институт психологии РАН, член-корреспондент РАН, доктор психологических наук, профессор.

Сфера научных интересов: интеллект, креативность, методология психологии.

Контакты: dv.usakov@gmail.com