



Journal Website:
<https://theusajournals.com/index.php/ajsshr>

Copyright: Original content from this work may be used under the terms of the creative commons attributes 4.0 licence.

AN EMPIRICAL STUDY OF THE EFFECT OF MENTAL ABILITIES ON STUDENT ACHIEVEMENT

Submission Date: December 20, 2022, **Accepted Date:** December 25, 2022,

Published Date: December 30, 2022

Crossref doi: <https://doi.org/10.37547/ajsshr/Volume02Issue12-18>

Usmonov Sherzod Axmadjonovich

Lecturer At The Department Of Psychology, Fergana State University, Uzbekistan

ABSTRACT

In this article, the relationship between mental abilities and leadership characteristics of students, and the mastery of subjects in the curriculum is studied. Also, based on the results obtained in the research, conclusions were drawn up with the help of statistical analysis.

KEYWORDS

Ability, intelligence, creativity, memory, will, thinking, divergent thinking, literacy.

INTRODUCTION

In the world, such characteristics as intellectual potential, ability, creativity, and knowledge are the basis of the economy. Humanity was created in such a way that these features have become one of the most urgent issues of the economic and social life of the state. The level of spiritual, moral, mental, intellectual and professional potential of each country's citizens is

a comprehensive indicator of society, determines its political, economic, social and cultural stability, and is considered the main core of professional success as a specialist. In the era of globalization, priority is given to "identifying young people with high mental abilities, supporting them with the help of a systematic program", and the feeling of pride in one's homeland,

nation, and occupation in a spiritually, morally and professionally well-formed person is one of the most urgent issues today. remains. In this regard, the problem of individual creativity is the problem of the century, the ability and concepts close to it (talent, talent, talent, genius, ability, inclination, interest, desire) are recognized as a strategic reserve of every state and society, and the need for scientific research of this problem is occurring.

In recent years, consistent measures have been implemented in our republic to support promising young people, to realize their talents, to create additional conditions for effective scientific research and innovation activities. This creates opportunities to find new theoretical solutions aimed at defining the professional success and direction of students by determining their mental abilities with the help of special diagnostic methods adapted to the national mentality.

Level of study of the problem. Social and psychological aspects of mental abilities in young people in our republic A.F. Azimova, M. Vohidov, M. Davletshin, E. Ghaziev, T. S. Joraev, V. M. Karimova, J. Kh. Mavlonov, Z. T. Nishonova, B. R. Kadirov, K. B. Kadirov, Researched by Sh.R.Samarov, E.Z.Usmonovalar and others.

Among the scientists of the Commonwealth of Independent States A.B. Brushlinsky, N.I. Chuprikova,

E.A. Klimov, B.F. Lomov, N.S. Leytes, A.M. Matyushkin, V.S. Merlin, L.S. Rubinshtein, A.V.Savenkov, B.M.Teplov, L.S.Vygotsky, M.Kholodnayas research of individual psychological characteristics that ensure the successful implementation of mental activity of gifted children and individual styles of activity and self-control mental activity that form the basis of talent have reached.

G. Eysenck, A. Bine, F. Galton, Dj. P. Gilford, R. B. Kettell, J. Locke, K. Perlet, J. from a number of foreign scientists who conducted scientific research on the issues of the multifactorial complex psychological structure of mental ability researched by Piaget, J. Renzulli, C. Spearman, R. Sternberg, L. L. Thurstone, K. Heller.

During our research, 247 students with a sharp mind, a deep memory, organizationally active, creative thinkers, and divergent thinking were selected from among 3190 students through the sociometry of intelligence. When we studied the correlation between the results of these students and the mastery of subjects, a strong positive correlation was found between them ($r=0.19$, $p<0.01$). It can be concluded that the students selected as "stars" of each group do not have any difficulties in mastering academic subjects.

During the study, when we analyzed the test subjects by gender, there was no statistically significant

difference in intelligence sociometry of male and female test subjects ($t=0.7$; $df=244$). From this result, it can be seen that the gender difference does not play a

major role in being selected as the "star" of the group according to the sociometry of intelligence (Table 1).

Table 1.

Differences in gender differences in the sociometrics of intelligence

Sex	N	Average value	Df	t-test
Man	120	1,7	244	0,7
Woman	126	1,67		

A statistically significant difference was reliably found in the sociometry of intelligence indicators of learning subjects ($t=2.4$; $df=224$). From these obtained results, it can be concluded that the indicators of learning subjects are reflected in the results of sociometric intelligence (Table 2). That is, students who learn subjects for five grades are rated higher by the group members than students who learn subjects for four grades.

Table 2.

The difference of the sociometry of intelligence in learning subjects

Science mastery index	N	Average value	Df	t-test
5	113	1,6	224	2,4*
4	113	1,7		

$p<0,05^*$

It can be seen that if the students have high intelligence indicators, the indicators of mastering the subjects of the curriculum are also high. In the course of our research, the literacy indicators of students with highly developed mental abilities, classified as gifted, were studied. 219 examinees took part in it (246 examinees passed the first stage, 219 of them participated in the second stage due to some reasons). Based on the results obtained from the participants in

the study, the relationship between the "100 words" and "50 sentences" methods included in this methodology was statistically analyzed.

Table 3.

Correlation coefficients of the results obtained from the "100 words" and "50 sentences" methods included in the "literacy test" (n=219)

Name	N	R
100 words	219	0,4*
50 sentences	219	

* $p < 0,001$

From this table, we can see that there is a statistically strong positive correlation between the "100 words" and "50 sentences" methods ($r=0.4$, $p < 0.001$). It can be concluded that these two tests help to obtain reliable results in scientific research carried out as a complementary method (Table 3).

In the course of our research, we studied the results of the "Literacy test" of the test takers, the indicator of students' mastery of subjects, and their correlation to the results of sociometric methods of intelligence.

Table 4.

Correlation coefficients between the indicator of students' mastery of subjects of the "Literacy test" and the results obtained from the sociometry of intelligence (n=219).

Name	Science mastery index	Sociometry of intelligence
100 words	0,144*	-0,06
50 sentences	0,136	-0,08
«Literacy test»	0,162*	-0,08

* $p < 0,05$

We can see from this table that there is a positive correlation between the general result of the "Literacy test" and the indicators of students' mastery of subjects ($r=0.162$, $p<0.05$). That is, if the student's literacy level is high, it will be easier for him to learn subjects. So, talented people who are able to understand the difference between written and spoken words, pay attention to spelling mistakes and punctuation marks in sentences, also achieve good results in mastering subjects (Table 4).

Also, when we studied the dependence of the "100 words" and "50 sentences" tests, which are part of the "Literacy test", on the indicator of learning subjects, it was found that there is a positive correlation between them. In particular, it was found that there is a positive correlation between "100 words" and students' mastery index ($r=0.144$, $p<0.05$). It was found that there is a positive correlation between the "50 sentences" test and the students' mastery index ($r=0.136$, $p>0.05$). In this case, although the "50 sentences" test did not reach the same level of confidence as the "100 words" test, in any case, a tendency towards a close association in the positive direction was observed.

There was no correlation between the results of the "literacy test" and sociometric intelligence ($r=-0.08$, $p>0.05$). Through the sociometry of intelligence, the group selected students who demonstrated prominent characteristics, including strong memory, sharp intelligence, organization, creativity, self-motivation, self-control, and interpersonal skills, but not literacy. Some students may be highly literate but may not have demonstrated this ability to the community. Taking into account these aspects, the correlation relationship may not be reflected in the results obtained by these two methods.

In order to study the gender differences of the 219 subjects who participated in our research at this stage, we divided them into two groups, male and female. The first group consisted of 103 male subjects, the second group consisted of 116 female subjects. Student's t-test was used to determine the level of statistical reliability in their literacy levels (Table 5).

Table 5

Differences in the results of the "literacy test" of men and women

	Sex	N	X_{\min}	X_{\max}	M	σ^2	S	A	Θ	T
100	Э	103	64	237	171,5	1262,9	35,5	-0,76	0,28	-
	A	116	95	328	192,3	1150,02	33,9	-0,04	2,1	4,4***
50	Э	103	44	156	92,5	562,4	23,7	0,23	0,07	-2,7**
	A	116	48	158	100,8	489,5	22,1	-0,21	-0,17	
Total	Э	103	144	393	263,96	2420,3	49,2	-0,04	-0,07	-
	A	116	169	413	293,07	2194,2	46,8	-0,26	0,01	4,5***

** $p < 0,01$; *** $p < 0,001$

From this table, we can see that the scores of male subjects on the "100 words" test range from 64 to 237 points, and most of the results are in the middle range of 171.5 ± 35.5 . The indices of asymmetry and kurtosis were close to 0 (-0.76 and 0.28). This result indicates that this series of numbers conforms to the law of normal distribution.

Female test scores ranged from 328 out of 95 points, with most results in the middle range of 192.3 ± 33.9 . The asymmetry indicator is close to 0 (-0.04), and the kurtosis indicates that the distribution is very "sharp-edged".

When we determined the differences between the results of the "100 words" test of male and female subjects using the Student's t-test, a 99.9 percent reliable difference was found between their mean

arithmetic values ($t = -4.4$, $p < 0.001$). That is, women are better at identifying spelling mistakes in words than men. Therefore, they have better developed logical thinking, such as literacy, the ability to clearly and correctly express one's thoughts using written speech.

According to this table, we can see that the scores of male examinees on the "50 sentences" test range from 44 to 156 points, and the average score of the main indicators is around 92.5 ± 23.7 . Also, the asymmetry and kurtosis indices are close to 0 (0.23 and 0.07), indicating that these indices completely correspond to the normal distribution of the given number series.

Female test scores ranged from 48 to 158 points, with most results in the middle range of 100.8 ± 22.1 . The asymmetry and kurtosis indicators are close to 0 (-0.21 and -0.17), indicating that these indicators completely

correspond to the normal distribution of the given series of numbers.

When we determined the differences between the results of the "50 sentences" test of male and female subjects using the Student's t-test, a 99.9 percent reliable difference was found between their mean arithmetic values ($t=-2.7$, $p<0.01$). That is, women are better at correcting spelling errors, punctuation marks, and using sentences in their place than men. Therefore, they have better developed logical thinking, such as literacy, the ability to clearly and correctly express one's thoughts using written speech.

We can see that according to the general indicators of the "literacy test", the indicators of the male examinees range from 144 to 393 points, and the average indicator of the main indicators is around 263.96 ± 49.2 . Also, the asymmetry and kurtosis indices are close to 0 (-0.04 and -0.07), indicating that these indices completely correspond to the normal distribution of the given numbers.

The results of the female examinees on the Literacy Test ranged from 169 to 413 points, and most of the results were in the middle range of 293.07 ± 46.8 . The indicators of asymmetry and kurtosis are close to 0 (-0.26 and 0.01), indicating that these indicators completely correspond to the law of normal distribution of the given series of numbers.

When we determined the difference between the overall results of the "Literacy test" of male and female test takers using Student's t-test, a 99.9% reliable difference was found between their mean arithmetic values ($t=-4.5$, $p<0.001$). It has been statistically proven that women have higher levels of literacy than men in terms of the general indicator.

We came to the following conclusions from the above experimental tests:

- The students selected as the "star" of each group using the method of intelligence sociometry "Selection of talented students" can easily master the subjects of the curriculum.
- gender difference does not play a major role in being recognized as a "star" of the group according to the sociometry of intelligence.
- Two tests ("100 words" and "50 sentences") included in the "literacy test" help to obtain reliable results in scientific research as a complementary method.
- those who are able to understand the differences between written and spoken words, pay attention to spelling mistakes and punctuation marks in sentences, also achieve good results in mastering subjects.
- it indicates that women are better able to identify spelling mistakes in words than men, they have better developed logical thinking, such as literacy,

the ability to clearly and correctly express their thoughts using written speech.

- students with high verbal intelligence have no difficulty in mastering the subjects of the curriculum.

REFERENCES

1. Axmadjonovich, U. S. (2022). EMPIRICAL ANALYSIS OF THE IMPACT OF SOCIO-PSYCHOLOGICAL FACTORS ON MASTERY INDICATORS IN STUDENTS.
2. Usmonov, S. A. (2020). PROBLEMS AND SOLUTIONS WITH WORKING ABILITY CHILDREN. In Психологическое здоровье населения как важный фактор обеспечения процветания общества (pp. 177-179).
3. Усмонов, Ш. А., Закирова, М. С., & Нуриддинов, Р. С. Ў. (2021). ИЛК ЎСПИРИНЛИК ДАВРИДА АҚЛИЙ ҚОБИЛИЯТЛАРНИНГ ЭМПИРИК ТАҲЛИЛИ. Современное образование (Ўзбекистан), (9 (106)), 12-16.
4. Usmonov, S. A. (2020). OPPORTUNITIES WITH WORKING ABILITY CHILDREN IN EDUCATION. In Психологическое здоровье населения как важный фактор обеспечения процветания общества (pp. 298-300).
5. Усмонов, Ш. А. (2022). ТАЛАБАЛАРДАГИ АҚЛИЙ ҚОБИЛИЯТЛАРНИ ЕТАКЧИ СИГНАЛЛАР ТИЗИМИГА БОҒЛИҚЛИГИНИ ЎРГАНИЛИШИ: Усмонов Шерзод Ахмаджонович, Фарҳона давлат университети, Психология кафедраси ўқитувчиси. Образование и инновационные исследования международный научно-методический журнал, (7), 328-333.
6. Usmonov, S., & Tojimatov, J. (2022). О'QUVCHI YOSHLARNI KASBGA YO'NALTIRISHNING PSIXOLOGIK OMILLARI.
7. Axmadjonovich, U. S., & Murodjon To'liqjon o'g, A. (2022). PRACTICAL OPPORTUNITIES FOR THE DEVELOPMENT OF CREATIVE THINKING IN STUDENTS. Galaxy International Interdisciplinary Research Journal, 10(7), 180-183.