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# Comparison of the analytical capacity of general, verbal, performance intelligence and its subscales and academic achievement between criminal and non-criminal juveniles

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## **Abstract**

**Introduction:** Criminal juveniles usually have many problems in school and show obvious differences in comparison with non-criminal juvenile. This study has been carried out to compare the analytical capacity of general, verbal, performance intelligence and its subscales and academic achievement between criminal juveniles and non-criminal juveniles.

**Materials and Methods:** The sample consisted of 71 male criminal juveniles and 71 non-criminal juveniles who were selected among criminal juveniles of Correction and Rehabilitation Center offenders and high school juvenile, in the academic year 2013-2014, in Gorgan and Sari through convenient and clustering sampling method. Research instrument were demographic questionnaire, Wechsler intelligence scale and questionnaire of academic achievement. Data analyzed through multivariate variance and t test.

**Results:** There is a significant difference between the offender and ordinary/normal juveniles' general intelligence ( $P<0.01$ ). The comparison showed a significant difference between two groups in verbal intelligence and performance intelligence ( $P=0.000$ ). Ordinary/normal juveniles have more scores in general verbal and performance intelligence, as well as o juvenile offenders have less academic achievement compared to the other group.

**Conclusion:** The results showed criminal juveniles achieved less scores in general, verbal, performance intelligence and its components, as well as criminal juveniles have less academic achievement than non-criminal juveniles.

**Keywords:** Academic achievement, Criminal juveniles, Intellectual capacity

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## Introduction

Criminal juveniles usually have many problems in school such as lack of academic success, staying in a class, participating in special training classes, dropout, suspension and expulsion (1). Educational and training issues and intelligence capacity has a direct impact on crime (2,3) and it is likely that common fundamental factors such as nerve-psychological defects, defects in verbal functions or inappropriate socio-economic status are the reason for academic problems or crime (4). There is little evidence to suggest that the main cause of academic failure, especially in childhood is psychopathic behavior. Since many children long before they start school, show pattern of psychopathic behavior.

Most likely, common fundamental factors such as nerve-psychological defects, defects in verbal functions or inappropriate socio-economic status are the reason for academic problems or crime. It is assumed that the verbal-linguistic deficiencies may be involved in anti-social behaviors through interfering in the growth of emotional control self-regulation and labeling on the others' emotions, this matter leads to lack of sympathy (5).

Researches showed that verbal IQ is " 8 score (6), 15 points (7), 8 to 12 score and 5 points (8) lower than nonverbal intelligence and cited domain of 85 in verbal intelligence and even in some studies on criminal juveniles, 13 percent of them were known with intellectual disability (9). They are same group of students who are excluded from education system cycle due to repeated failing and disability in understanding contents and inappropriate book contents according to their intelligence capacity but have appropriate practical and mobility skills. This group of students are those who have not good verbal and linguistic skills but have appropriate practical abilities and even very well (10).

Ahadi and Mohseni conducted a research on juvenile delinquency and concluded that the

correlation between IQ and the ability to read and juvenile's deviant behavior still remains even after controlling variables such as family size and social class. In general, negative correlation between deviant behavior and the ability to read is more than the correlation between deviant behavior and IQ. Thus, since these individuals are not able to mention their desires and take their rights through speaking, they prove everything by action such as physical conflicts which increase the possibility of crime.

It is most likely that children with psychopathic and criminal problems face with educational disadvantage problems in language and reading. As well as deficiencies in executive and verbal functions are their other problems. If children and adolescents with attention delinquency and hyperactivity problem face with problems, they will face serious issues in academic problems (11).

Researches on criminal juveniles' academic achievement suggest it is most likely that criminal juveniles may have too low academic achievement and their IQ level is below the normal level (12) and unfortunately, the prevalence of learning disability is more in them (13). Most of criminal juveniles have normal intelligence but obtain on average 8 score lower than their peers in IQ tests. This intelligence failure may be both premature and even be more than 15 scores and factors such as low social class can't the reason for this intelligence failure (14). Halahan and Kaufman argued that students with emotional problems and delinquency are located in the low intelligence field domain (about 90). Most of these individuals compared with the normal distribution of intelligence are located in the domain of students who learn slowly and are mild mental retardation (15). Researches unanimously show that in offenders /criminals the verbal and overall IQ are lower than the normal groups (16). The researchers believe that low IQ and verbal intelligence in criminals exist in children at an early stage of

development and before delinquency problems. They believe that children with low verbal performance associated with family adversity show aggressive behavior four times higher than children who only have one of these matters (17). On this basis and according to the above researches, the necessity of self-awareness, intellectual capacity and academic characteristics of criminal juveniles are perceived. So this study has been carried out to compare the analytical capacity of overall, verbal, performance intelligence and its subscales and academic achievement of criminal juveniles with normal ones.

### Materials and Methods

This research is descriptive and in terms of data collection is as causal-comparative research. Thus, criminal and normal juveniles' intellectual capacity features and educational improvement were compared and analyzed.

The sample population in offenders group was all male criminal juveniles in Correction and Rehabilitation Center of Golestan, Mazandaran Province, respectively. In the normal group all juvenile were studying in schools in the academic year 1393-1392, in the city of Gorgan and Sari high schools. The first population was 71 offenders who were selected through available sampling among all the patients who were in detention or imprisonment for various crimes in Correction and Rehabilitation Center of Golestan, Mazandaran Province. The population of the latter group was 71 normal juvenile who were selected through random cluster sampling method in relation to juvenile offenders from high schools.

This research is fundamental type in terms of goal /purpose and is causal - comparative in terms of data collection method. Data were analyzed by SPSS 17 software. To analyze the data, descriptive statistics and multivariate variance analysis, independent t-test and chi-square were applied.

The criteria for involvement included not having any physical or mental disorder, major stressful event in the last quarter and having attendance experience in school. Due to moral considerations participants were assured that their information will remain confidential.

Research instrument

A) *Demographic questionnaire*: This questionnaire is designed by researcher and was applied to gather more information in clinical and normal samples. The questionnaire contains family detailed information such as juvenile's education level, grade point average, parents, type of juveniles crime, type of parents possible crime, offenders Criminal record, number of siblings, juvenile's disability, disabilities or physical and psychological problems in family or siblings, parents remarriage, income, socioeconomic status.

B) *Wechsler Intelligence Scale for Children*: The scale measures the intelligence of children ages 6 to 16 years, 11 months and 30 days. This scale consists of 12 subscales.

Children verbal-scale includes general information subtests, comprehension, calculation, analogies, vocabulary and numbers memory and children practical scale includes images completion subtests, images adjustment, design with cubes, parts assembly, encoding (which is counterpart of adults numerical codes). Three IQ tests is obtained through applying Wechsler different questionnaires: verbal IQ, performance IQ and general IQ. Verbal IQ demonstrates person's ability in verbal skills. Performance IQ specifies person's ability in objective, tangible and practical activities. Overall determines person's overall abilities. Test reliability was calculated by both split and retest methods for subsidiary tests as well as verbal IQ, performance IQ and general IQ. Split average reliability coefficients through even/odd method for verbal IQ, performance IQ and general IQ was 0.94, 0.90 and 0.96, respectively, and retest coefficients of three age groups (6.5 to 7.5, 10.5 to 11.5 and 14.5

to 15.5) was reported as 0.93 , 0.90 and 0.95 , respectively. The validity of this test was reported through correlation with Stanford-Bine test equals to 0.78 , with A group intelligence test equals to 0/66 and with appropriate criterion tests, including Peabody College academic achievement test equals to

0.71 and with class scores equals to of 0.39 (18 ).

C) *Academic achievement:* Academic achievement data was collected through demographic questionnaire .So that the average of the last academic year has been considered as criteria.

**Results**

**Table 1.** Descriptive data collected for juvenile offenders and normal

| Items                           | Normal juveniles<br>Percent<br>quantity | Criminal juveniles<br>Percent<br>quantity |
|---------------------------------|-----------------------------------------|-------------------------------------------|
| Age average                     | 16.02                                   | 16.11                                     |
| Education                       |                                         |                                           |
| Primary school                  |                                         | 32 23                                     |
| Guide school                    |                                         | 38 27                                     |
| High school                     | 100 71                                  | 30 21                                     |
| Mean of the average grade point | 15.45                                   | 12.05                                     |
| Failing                         | 7.7 9                                   | 52.1 37                                   |
| Average IQ                      |                                         |                                           |
| verbal                          | 101.38                                  | 82.79                                     |
| Performance                     | 99.96                                   | 91.9                                      |
| Overall General                 | 100.76                                  | 85.87                                     |

As Table 1 shows average age of the criminal juveniles is 16.11 years and average age of normal ones is 16.02 years.

In terms of education, 32 percent of criminal juveniles were in primary school, 38 percent

in guide school and 30 percent in high school students were instructed. Average grade of criminal juveniles was 12.05 and for normal ones was 15.45. 52.1 percent of criminal juveniles had failing record while 7.7 percent of normal ones had failing record.

**Table 2.** General intelligence differences in offender and normal juveniles

| Variant              | Variants | Quantity | mean   | Standard deviation | T value | Degrees of freedom | Significant level |
|----------------------|----------|----------|--------|--------------------|---------|--------------------|-------------------|
| General intelligence | criminal | 71       | 85.87  | 5.83               | -14.185 | 140                | 0.000             |
|                      | Normal   | 71       | 100.76 | 6.56               |         |                    |                   |

T-test for independent groups was applied to evaluate differences in criminal and normal juveniles' general intelligence .The results of t-test showed that there is difference between

criminal and normal juveniles' overall intelligence the general intelligence ( $p < 0.01$  ,  $t(140) = -14.185$  ) and criminals have more general intelligence.

**Table 3.** Results of tests effects between subjects (dependent variables: verbal and practical)

| Change source | Test                     | Sum of squares | Degrees of freedom | Mean of squares | F       | P   | Chi-square |
|---------------|--------------------------|----------------|--------------------|-----------------|---------|-----|------------|
| GROUP         | Verbal intelligence      | 1179           | 85.87              | 5.83            | -14.185 | 140 | 0.000      |
|               | Performance intelligence | 71             | 100.76             | 6.56            |         |     |            |

Table 3 shows the effect of group ( $P = 0.000$  ,  $F(2,137) = 131.74$  ,  $\Lambda$  Wilks' 342.0) is significant and 65/8 percent ( $\eta^2 = 0.658$ ) variance account group membership he does. The comparison between the two groups in verbal intelligence showed there is significant

difference between the two groups in verbal intelligence ( $P = 0.000$  ,  $F(1,138) = 262.067$ ) ,and in performance ( $P = 0.000$  ,  $F(1,138) = 58.759$ ) and normal juveniles have more in both verbal and performance intelligence .

**Table 4.** Test results of effects between subjects (dependent variables: Intelligence Components)

| Change source | test                | Sum of squares | Degrees of freedom | Mean of squares | F       | P     | Chi-square |
|---------------|---------------------|----------------|--------------------|-----------------|---------|-------|------------|
| Group         | Information         | 677.6          | 1                  | 677.6           | 118.131 | 0.000 | 0.461      |
|               | Similarity          | 464.464        | 1                  | 464.464         | 114.994 | 0.000 | 0.455      |
|               | Arithmetic          | 387.779        | 1                  | 387.779         | 93.041  | 0.000 | 0.403      |
|               | Vocabulary          | 303.114        | 1                  | 303.114         | 59.101  | 0.000 | 0.3        |
|               | Comprehension       | 345.714        | 1                  | 345.714         | 68.367  | 0.000 | 0.331      |
|               | Pictures Completion | 35             | 1                  | 35              | 7.65    | 0.000 | 0.053      |
|               | Adjustment          | 61.779         | 1                  | 61.779          | 15.547  | 0.000 | 0.101      |
|               | Cubes               | 15.779         | 1                  | 15.779          | 5.205   | 0.024 | 0.036      |
|               | Assembly            | 3.15           | 1                  | 3.15            | 1.103   | 0.29  | 0.008      |
|               | Signs               | 194.464        | 1                  | 194.464         | 44.7    | 0.000 | 0.245      |

Table 4 shows the effect of group ( $P = 0.000$ ,  $F(10,129) = 26.267$ ,  $\Lambda = \text{Wilks}' 0.329$ ) is significant and group membership explains 67.1 percent ( $\eta^2=0.671$ ) variance. The comparison between the two groups in the Intelligence components showed there is difference between two groups in

information, similarity, arithmetic, vocabulary, comprehension, pictures Completion, pictures adjustment, cubes and normal juveniles are better in all components but there isn't significant difference between the two groups in parts assembly ( $P = 0.29$ ,  $F(1,138) = 1.103$ ).

**Table 5.** Differences in academic achievement between criminal and normal juveniles

| Variant              | Variants | Quantity | mean  | Standard deviation | T value | Degrees of freedom | Significant level |
|----------------------|----------|----------|-------|--------------------|---------|--------------------|-------------------|
| Academic Achievement | criminal | 71       | 12.05 | 4.86               | -5.452  | 88.91              | 0.000             |
|                      | Normal   | 71       | 15.45 | 1.86               |         |                    |                   |

T-test analysis results with modified degrees of freedom showed that there is difference between criminal and normal juveniles' academic achievement ( $p < 0.01$ ,  $t(88/91) = -5.452$ ) and normal ones have more academic achievement.

**Discussion**

The results of t-test showed that there is a difference between criminal and normal juveniles' general intelligence and normal juveniles have more general intelligence. Also the results of the comparison between the two groups in verbal intelligence indicated that there is a significant difference between the two groups in verbal intelligence and there is a significant difference between the two groups in the performance intelligence and normal juveniles have more scores in both verbal and performance intelligence. These results are aligned with the results of researches which were conducted by Farington et al (19); Lubr and et al (20), Goodman (21); Nagin et al (22), Ferguson et

al (23), Moffitt (18); Hynshu (17); Chandler et al (24); Mania Dakis and Kakurus (9); Candle et al (25); Schönefeld et al (26); Gelret and Albero (27). The results of all these studies have shown that criminal juveniles are in lower level of intelligence. Undoubtedly, family problems, parents' education level, their employment level, children supervision level, noting to the education as necessity factor by family and mental illness and unfortunately cognitive problems in parents which children inherit them provide background for more intelligence problems. Researches also showed that verbal intelligence is lower than performance intelligence in offenders which is a special failure and inclusive in language that may affect receptive language and reading, problem solving, expressive language and writing and overall memory (4). In parallel with the cognitive problems, offenders are also have problems in academic that this matter is a sign of the delicate

interaction between cognitive variable and academic achievement. Most of the researches on academic achievement and delinquency have shown that there is correlation between poor academic achievement and delinquency and offenders face serious challenges in academic achievement (28). Other studies unanimously agree that juvenile delinquency has high significant correlation with academic failure (29 and 30). Researches have also concluded that school affairs and educational status have more strong relationship with delinquency than social class when offenders 'social class and educational status and school are under control.

T-test analysis results with modified degree of freedom showed that there is difference the between criminal and normal juveniles' academic achievement and normal individuals have more academic achievement. These results are aligned with the results of Manyadakis and Kakurus (9); Farington et al (20); Wang, Bloomberg and Lee (32), Hogan (6), Elm and Anderson (33), Jensen et al (34); Meltzer and et al. (35); Gelert and Albero (28), Noori (36); FathiAghdam et al (13), Ebrahminasab et al (37).

It is most likely that the children and teenagers who have poor academic skills, lose increasingly their interest in school and joint to their delinquent peers. In adolescence, the relationship between poor academic

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achievement and psychopathic and criminal behavior is stabilize seriously (4).

According to the results of this study, reading and writing skills and intellectual capacity are effective in delinquency. Having low verbal IQ but high performance intelligence is associated with psychopathic behavior. Parallel to this matter, these problems in intelligence issues are predictors of academic difficulties in the future.

According to existing studies and the results of this study, it seems that it is essential to pay particular attention to the issue of students with learning disabilities and slow learners in order to prevent conflict with the law and risk of delinquency through emphasis on reading and writing skills and applying guidance which increases verbal IQ.

### **Conclusion**

The results of this study showed that in terms of verbal, performance and general intelligence, criminal juveniles received lower scores in all components, As well as comparison results between two groups in verbal and performance intelligence components shoed normal juveniles are better than offenders, except in parts assembly subscales that there is no significant difference .Offenders also have lower academic achievement than the normal group.

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