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ABSTRACT:

In this brief paper, an empirical topology using mechanical and/or technical aptitude, school achievement, and general intelligence as cognitive dimensions for classifying incarcerated criminals is presented. It is then demonstrated as a practical procedure with a large sample of consecutive admissions to London Correctional Institution, a medium-minimum custody correctional institution. Results obtained tend to confirm that the average incarcerated criminal has normal intelligence, an approximate 7th grade level of school achievement and below-average mechanical and/or technical aptitude. However, from a typological viewpoint, the more common incarcerated criminal is found to be less technically apt-less educated-less capable. With such a criminal cognitive type, it is felt that programmatic efforts for the more common incarcerated criminal should be focused on the further development of basic cognitive, affective, and social skills. As such, the more common incarcerated criminal does not understand the civilian environment well and lacks the vocational and educational resources to compete with civilians in the economic world.

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Cognitive Abilities of Incarcerated Criminals

by

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For approximately twenty-five years now, the Ohio Department of Rehabilitation and Corrections has been administering a battery of psychometric and edumetric tests to criminals on a routine basis on admission to the current system.<sup>1</sup> The purpose in administering these psychological tests has been to assess (quantitatively) the cognitive ability levels of new residents with respect to their technical vocational training aptitudes, school achievement, and general intelligence. The results obtained then are used as supplementary data in making rehabilitation decisions with regard to appropriate vocational training; suitable institutional job training placements; and needed academic training for these criminals. These psychological test results also have been used in personal, educational, and vocational counseling by various institutional departments with these residents. It is felt generally that by having these quantitative psychometric and edumetric data these criminals can be processed through the current correctional system more effectively, administratively and programmatically.

Historically, a variety of well-known psychological instruments has been used in a standard test battery to assess residents' cognitive abilities upon admission to the current system. Thus,

the Bennett Mechanical Comprehension Test; Minnesota Paper Form Board; Differential Aptitude Test: Mechanical Reasoning; and Differential Aptitude Test: Spatial Reasoning have been used to assess technical vocational training aptitudes. The Stanford Achievement Test; Otis-Lennon Mental Ability Test; and California Test of Adult Basic Education have been used to estimate school achievement levels. The Wechsler Adult Intelligence Scale; Ohio Penal Classification Test; and Revised Beta have been used to assess general intelligence. It is assumed that when each type of these ability tests is administered to new residents, empirical data about different dimensions of their cognitive functioning are gained.

However, it is not possible to state unequivocally that with the current psychometric and edumetric battery of the Differential Aptitude Test: Mechanical Reasoning; Differential Aptitude Test: Spatial Reasoning; Otis-Lennon Mental Ability Test; and Revised Beta completely different dimensions of residents' cognitive functioning have been assessed (Rahn and Jones, 1976). As has been suggested elsewhere (Herrnstein, 1971; Levine, 1976), these types of psychometric and edumetric tests load highly and positively on a general cognitive factor which reflects current learning ability.

Yet, the factor loadings of these cognitive ability tests (.50's and .60's) are sufficiently low to suggest that the administration of these kinds of psychological tests to new residents can contribute unique cognitive data about the intellectual needs and potential learning skills of these residents

(Bach, 1971; Wenk, Halatyn, and Harlow, 1974; Wechsler, 1975; Green, 1978). As commonly believed elsewhere (Flaughner, 1978; Green; 1978), it is felt in the present correctional system that these technical vocational aptitude tests will assess the criminals' future occupational training potential; these academic achievement tests will assess the residents' past school achievement; and these intelligence tests will assess the criminals' current learning ability.

During the twenty-five years, the quantitative cognitive levels of performance for the average criminal were fairly well established within the current system and elsewhere (Wenk, Halatyn, and Harlow, 1974; Rahn and Jones, 1976). Thus, he was found to be as generally capable intellectually as the average civilian although he is less educated, less technically able, and less experienced occupationally than the average civilian. Although there are distinct advantages (as well as disadvantages) to a typological approach to criminal behavior (Wenk and Halatyn, 1974), no empirical typological method has been developed within the current system to describe incarcerated criminals' cognitive abilities qualitatively. Nor has there been any attempt to establish the specific cognitive abilities of the more common incarcerated criminal. If such a typological method of classification existed which could be used to describe the possible criminal cognitive types, then the cognitive type of the more common incarcerated criminal as well as other criminals could be established.<sup>2</sup>

The present paper presents a practical and empirical typological method for classifying the different cognitive abilities

of incarcerated criminals with respect to technical vocational aptitude, school achievement, and general intelligence. It then demonstrates an application of the typological method by presenting the empirical results obtained with a large and probably representative sample of consecutive admissions to the current system. As a consequence, the cognitive types of incarcerated criminals generally as well as the cognitive type of the more common incarcerated criminal are generated. From the results obtained with a qualitative analysis of the cognitive structure of these residents, specific programmatic recommendations are made which logically and practically follow.

#### Method

##### Procedure:

To develop empirically a typological system for classifying incarcerated criminals' cognitive abilities, an assumption was made that the average resident is generally as capable, either vocationally, academically, or intellectually, as the average civilian. As a result, each resident's cognitive abilities with respect to technical vocational aptitude, school achievement, and general intelligence could be classified (typed) on three trait dimensions that were assumed to be independent.<sup>3</sup> Based on findings of previous research, dichotomous data cut-offs on each of the trait dimensions of technical vocational aptitude, school achievement, and general intelligence at the approximate means for civilians generally were made.

Thus, higher and lower levels of technical vocational

aptitude were defined by test scores of percentiles of 51 or greater and 50 or less.<sup>4</sup> Higher and lower levels of school achievement were defined by test scores of 7.6 grades or greater and 7.5 grades or less. Higher and lower levels of general intelligence were defined by test scores of 101 or greater and 100 or less. Similar normative scores were reported with other incarcerated criminals (Wenk and Halatyn, 1974). By combining the higher and lower categories of each of these three hypothetical cognitive ability dimensions, an empirical typology of eight classes for incarcerated criminals with regard to their qualitative make-up was devised.

#### Subjects:

To examine the qualitative make-up of newly admitted residents to the current system, the technical vocational aptitude, school achievement, and general intelligence scores for all consecutive, medium custody admissions to London Correctional Institution between January, 1976 through December, 1978 were classified into one of the eight possible criminal cognitive types. Less than 5% of this admission sample could not be classified because of untestability, unavailability, etc. As a result, an N = 3179 of normal intake residents were typed in accordance with their respective criminal cognitive abilities. Table 1 and 2 present the twelve secondary criminal cognitive types and eight primary criminal cognitive types respectively with their corresponding percentages in the residential admission sample.

#### Results

Several important observations can be made from a careful study of the data in Table 1 and Table 2. As many residents were likely

to possess lower general intelligence as higher general intelligence. Similarly, as many residents were likely to possess lower school achievement as higher school achievement. Yet, more residents were likely to possess a lower technical vocational aptitude than a higher technical vocational aptitude. These results tend to validate the appropriateness of the data cut-offs used in developing this empirical typology of cognitive abilities. They confirm that the average incarcerated criminal possesses normal general intelligence, an approximate 7th grade level of school achievement, and below-average technical vocational aptitude.

Each of these cognitive abilities appear to be associated with each other generally--general intelligence, school achievement, and technical vocational aptitude. This finding is simply a restatement of a prior finding among incarcerated criminals in the current system that these cognitive abilities tend to load positively on a general learning factor. Indeed, these three cognitive abilities have been found to be positively correlated (.30's and .40's) with each other previously. Thus, residents who show lower cognitive abilities on one trait dimension tend to show lower cognitive abilities on another trait dimension, and obversely.

Several criminal cognitive types in Table 2 (e.g., A through E) occur at such a high frequency that they may be genuine criminal cognitive types. However, several other criminal cognitive types (e.g., F through H) occur at such a low frequency that they may be non-existent in reality or non-pure criminal cognitive types. It is difficult to conceptualize that incarcerated criminals have high technical vocational aptitude and yet have either low school achievement or low general intelligence.

Table 1

<u>Secondary Criminal Cognitive Type:</u>	<u>n</u>	<u>%</u>
1. More Educated-More Capable:	1286	40
2. Less Educated-Less Capable:	1094	34
3. Less Educated-More Capable:	407	13
4. More Educated-Less Capable:	392 <sup>a</sup>	12
5. Less Technically Apt-Less Capable:	1370	43
6. Less Technically Apt-More Capable:	958	30
7. More Technically Apt-More Capable:	735	23
8. More Technically Apt-Less Capable:	116 <sup>b</sup>	4
9. Less Technically Apt-Less Educated:	1415	45
10. Less Technically Apt-More Educated:	913	29
11. More Technically Apt-More Educated:	765	24
12. More Technically Apt-Less Educated:	86 <sup>c</sup>	3
Total Number of Residents:	3179	

<sup>a</sup>Chi-Square (3) = 809.61,  $p < .001$

<sup>b</sup>Chi-Square (3) = 1033.78,  $p < .001$

<sup>c</sup>Chi-Square (3) = 1134.81,  $p < .001$

Calculation of the secondary criminal cognitive types for technical vocational aptitude and school achievement as well as technical vocational aptitude and general intelligence in Table 1 supports this view. Indeed, all these cognitive abilities require minimal amounts of standard verbal, numerical, and written skills in order for one to perform adequately on these ability tests. Explanations regarding situational difficulties, instructional problems, motivational changes during tests administration, etc. probably should be considered to account for these latter criminal cognitive types (Bach, 1971; Cirino-Gerena, 1972).

In any event, Table 2 results strongly suggest that criminal cognitive type A is the most frequent ability type even though it represents only 1/3 of the residential sample. It is the cognitive type of the more common incarcerated criminal and may be the more common cognitive type for the current correctional system. If so, then the more common incarcerated criminal (less technically apt-less educated-less capable) probably enters prison from civilian life with not only many cognitive incompetencies but also many affective and social incompetencies which tend to prevent him being successful in standard vocational training or classroom instructional settings (McClelland, 1973).

Additionally, he enters the current system from civilian life probably having been excluded from the potentially more gainful trades and occupations. To have found previously that the more common incarcerated criminal type is a younger, impersonal offender with a limited history (theft related) of institutionalization appears very reasonable (Rahn and Jones, 1976).

Table 2

Primary Criminal Cognitive Type:	n	%
A. Less Technically Apt-Less Educated-Less Capable	1054	33
B. More Technically Apt-More Educated-More Capable	689	22
C. Less Technically Apt-More Educated-More Capable	597	19
D. Less Technically Apt-Less Educated-More Capable	361	11
E. Less Technically Apt-More Educated-Less Capable	316	10
F. More Technically Apt-More Educated-Less Capable	76	2
G. More Technically Apt-Less Educated-More Capable	46	1
H. More Technically Apt-Less Educated-Less Capable	40 <sup>a</sup>	1
Total Number of Residents:	3179	

<sup>a</sup>Chi-Square (7) = 2311.31,  $p < .001$

Thus, he probably found himself prior to admission as occupationally, educationally, and socially less competitive in the economic areas than other civilians (Kennedy, 1973).<sup>5</sup>

There are some practical but logical deductions to be made from these research data. To the extent that they are diagnostic with these residents; predict future vocational and educational performance, and can be generalized to criminals within the current system, it would seem unprofitable for programmatic efforts to concentrate on the training of high technical and advanced educational skills, especially for the more common incarcerated criminal. Inspection of the data for the secondary and primary criminal cognitive types in Tables 1 and 2 will provide immediate support for this view. Only 1/5 of these residents could legitimately be expected to profit from such advanced preparation, either high technical vocational or academic training or both. Indeed, these data even suggest that the more common incarcerated criminal may profit less in that area of vocational training of which he is most in need--skilled technical occupations.

Instead, these data suggest that rehabilitative efforts should be designed within the short time span that the incarcerated criminal is within the current correctional system to remediate those basic cognitive, affective, and social incompetencies to be found in these residents. The more common incarcerated criminal is likely to be less prepared in such primary and traditional cognitive skills as the three R's and such basic vocational skills as technical and mechanical comprehension. Also, he is likely

to be less prepared in such basic affective skills as appropriate goal setting, delay of response gratification, and developing initiative and persevering in behavior. At the same time, he is likely to be less prepared in such basic social skills as relating to supervisory or authoritative influence, demonstrating appropriate work behaviors, and interpersonal expressions (verbal and non-verbal).

It is no accident that performance on these cognitive ability tests has been found to be correlated with occupational, educational, and social adjustment levels (Kennedy, 1973; McClelland, 1973). It can be assumed that with more skill training in these personality areas--cognitive, affective, and social, the more common resident would be better able to gain from more advanced technical and educational experiences if they are offered in civilian life after release. If Wechsler (1975) is correct in his interpretation of what intelligent behavior is, then it would appear that the more common incarcerated criminal does not understand the civilian environment well and lacks the psychological resources (especially the occupational skills) to cope with it.

FOOTNOTES:

1. For an excellent discussion of the differences between psychometric and edumetric tests, one should consult, Carver, Ronald P., Two Dimensions of Tests, American Psychologist, Vol. 29, No. 7, July, 1974, 512-518.
2. The original idea for developing a cognitive typology for incarcerated criminals came from a view of Wechsler (1975) who suggested that the classification of levels of intelligence should be made primarily in terms of the degree or amount to which they deviated from an established normative mean.
3. As already indicated, these cognitive abilities probably cannot be assumed to be independent. But they have been so treated that this investigation could be performed.
4. The technical vocational aptitude trait dimension in this paper expresses both mechanical and spatial reasoning. They were combined because they have been found to be moderately correlated. Both aptitude scores were averaged to get a wholistic measure of technical vocational aptitude. No assumption is made that these are the only aptitudes an individual may possess.
5. Research with incarcerated criminals generally indicate that they were either underemployed or unemployed at the time of their criminal offense.

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