

## **Notes on the Nature and Use of the Mosaic Test**

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### **Description**

The test material consists of a box of Mosaic Pieces which are standardised so that each shape is available in every colour.

The collection of pieces comprises squares, right-angled triangles (which are the size of half the square), diamonds (whose side is equal to the side of the square), equilateral triangles (whose side is equal to the base of the right-angled triangle), and scalene triangles (equal to half the equilateral triangle). The colours supplied are red, yellow, blue, green, black and white.

In addition to the box of mosaics it is advisable to use an oblong tray which has a raised edge, and on which a piece of paper the exact size of the tray has been laid. (The usual size of the tray is 13 inches by 10 inches.)

### **Method of Presentation**

The subject should be seated at a table with the tray before him, and the pieces themselves and the relation between them demonstrated to him. Care should be taken to use all the colours while demonstrating, and to replace in the box the pieces used for this purpose. The subject should then be instructed to use the pieces in the box for the creation on the tray of anything that pleases him. He should be told that he can make anything that he wishes, using as many pieces as he likes and take as long as he chooses, the single restriction given being that the task when accomplished must produce a result which to him individually is pleasing.

### **Classification of Designs**

#### **1. Fundamental Patterns:**

The simplest form of pattern has been given a special title in that it represents the utilisation of a single geometrical piece to its fullest possible extent in the simplest possible manner: for example, the use of six of the equilateral triangles to form a hexagon, or of eight of the diamonds to form a star. Such designs are called fundamental patterns.

## 2. Concrete, Abstract and Incoherent Patterns:

All mosaic patterns can be divided into concrete, abstract or incoherent designs.

**Concrete Patterns:** Concrete is the name given to a type of pattern which represents a person, animal, object or scene. Under this heading are also included those patterns which are symbols of abstract ideas, e.g., wings to represent flight.

The representation may be conscious or unconscious. That is to say, the subject may take the pieces in hand with the deliberate intention of making a man or a boat or having made a neutral design may remark about it, after completion, that it resembles an animal or object.

There are three types of concrete designs :-

- (a) The representation of a real object—(i) An object actually seen, e.g., a boat.  
(ii) A phantastic object, e.g., a devil.
- (b) The use of an object to form a conventionalised design—for example a floral pattern.
- (c) The formation of a design to represent abstract ideas—for example death or revolution.

Both actual and phantastic objects are to be found among designs made by children and by adults, but conventionalised design and the representation of ideas (types b and c) are found only among patterns made by adults.

Patterns of types a (i) are for the most part made by people of objective temperament. who are energetic and extraverted, and who have little interest in abstract thinking.

Patterns of the type a (ii) are found most often among subjects of a similar general build. but more interested in ideas. If the designs show movement. they tend to be indicative of impulsiveness and natural quickness of response. If the representation be static, the probability is that the subject is interested in objects rather than movement.

Concrete designs are more often made by men and boys than by women and girls. and the difference in incidence is sufficiently large to be statistically significant.

**Abstract Patterns.** The arrangement of the pieces into a design which has no objective significance is known as an abstract pattern: such patterns may be divided into two main groups—Compact and Scattered.

**Compact** is the name given to those patterns in which advantage has been taken of the geometrical properties of the pieces in the making of the designs, all elements of the pattern being fitted closely together.

**Scattered** patterns are those in which the pieces used stand apart one from the other. rendering the spaces in between the pieces as important in the design as the pieces themselves.

There exists also a third group intermediate between these two, in which the pattern contains elements of both. These, for convenience, are called Intermediate patterns.

Compact patterns are more frequently made by men than by women. It is unusual to find a scattered abstract pattern made by a male subject unless he be used to artistic effort as a profession or hobby. Compact patterns are usually found among women who have undergone standard intellectual training such as work for a University degree ; whereas scattered designs are more usually made by women with no specialised intellectual training. The material so far obtained suggests that perhaps the scattered design may indicate an intuitive approach to life.

**Incoherent Patterns.** Patterns in which the pieces are grouped on the tray at random, showing no coherent idea or order, are known as incoherent patterns. Among normal subjects the incoherence may or may not be perceived. Incoherence is of two types—that associated with mental deficiency, and that frequently found among neurotic subjects.

The mentally defective type of pattern shows complete incoherence with no element whatever of design. The same type of pattern is made also by normal children under four years of age.

**Table Showing the Frequency of Incidence of Types of Patterns  
Expressed in Percentages**

**Analysis of Patterns made by Normal Children**

ANALYSIS OF PATTERNS MADE BY NORMAL CHILDREN.

No in Group (Boys)	No. in Group (Girls)	AGE	ABSTRACT		CONCRETE		INCOHERENT		COMPACT		SCATTERED		INTER-MEDIATE		SUCCESSFUL		Total No. Boys and Girls
			Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
68	60	4-7	30.8 ± 5.6	41.6 ± 6.3	27.9 ± 5.4	11.6 ± 4.1	41.3 ± 5.9	46.8 ± 6.4	42.2 ± 6.9	29.4 ± 6.3	12.0 ± 4.5	31.3 ± 6.4	46.0 ± 7.0	39.3 ± 6.8	25.4 ± 5.1	34.7 ± 6.1	128
71	76	8-11	74.6 ± 5.1	86.8 ± 5.8	15.4 ± 4.2	2.6 ± 1.8	10.0 ± 3.5	10.6 ± 5.5	60.0 ± 6.3	41.1 ± 5.7	5.0 ± 2.8	20.5 ± 4.7	35.0 ± 6.1	38.4 ± 5.2	84.4 ± 4.2	77.4 ± 4.7	147
101	103	12-15	88.9 ± 5.0	91.4 ± 2.7	7.4 ± 2.5	6.7 ± 2.4	3.7 ± 1.8	1.9 ± 1.3	67.0 ± 4.7	65.3 ± 6.8	12.0 ± 5.2	13.2 ± 5.4	21.0 ± 4.1	21.5 ± 4.1	79.9 ± 5.8	85.3 ± 5.4	204

Incoherent designs made by a neurotic individual appear at first to be totally disconnected, but if the pieces be examined closely, the design will be found to reveal scattered elements and units of pattern. These, in later designs, when the emotional state of the subject has improved, will tend to integrate themselves into a coherent design.

### 3. Successful and Unsuccessful Patterns

All designs can again be sub-divided into successful and unsuccessful patterns. This classification is difficult to explain theoretically but is easily differentiated in practice. A design is successful if the subject achieves what he sets out to do, provided that this is within his mental capacity, ° it is unsuccessful if he finds himself unable to complete the task he has set himself. This lack of success may be due to his inherent inability, to confusion of thought at the time of making the design, or to a persistent attempt to achieve something, the accomplishment of which the pieces do not permit.

An interesting variety of this type is that named the Unrealised Unsuccessful Pattern. In this type, the subject makes a design in which one or more pieces spoil the general effect, but the discrepancy, when made, is unnoticed. Such failures occur even in patterns made by very intelligent adults. They give evidence of emotional disturbance.

#### **4. The Use of Colour:**

Investigation into the significance of colour is not yet completed. The following statements appear to be justified from the data so far available.

- (A) In children and young people, the use of many black pieces is associated with depression.
- (B) Designs edged with projecting red pieces tend to be made by excitable and impulsive people.
- (C) People of high cultural level prefer to use only two, or at the most three, colours in making abstract designs.
- (D) People of a very practical and extraverted type tend to show an indifference to colour, the whole attention being concentrated upon the form of the design. This is particularly marked in the case of male subjects.
- (E) Judicial and executive types tend to use five or six colours, arranging them With reference to balance, but not to artistry.

#### **5. Maturation in Relation to Design**

It is obvious that the variability and complexity of the patterns made will increase with the age of the subject. The table on pages 3 and 4 shows the percentage of the various types of patterns made by different age groups of normal children.

#### **Use for Diagnostic Purposes**

The following are the simplest uses that can be made of the test for the purpose of diagnosis. It is inevitable that this section will appear dogmatic, but space does not permit of any but a very brief statement, the brevity of which gives the appearance of dogma.

The test can be used as an instrument of diagnosis for:

- (A) Emotional Disturbance.
- (B) Mental Defect.

## (A) Emotional Disturbance:

Children and adults suffering from emotional disturbances, ranging from slight temporary indispositions to deep-lying neuroses, make distinctive types of pattern. A few of the more easily distinguished of these are given below:-

1. **The Edge Design.** This is the name given to designs built round the edge of the tray. The pieces most generally used are squares, half squares and diamonds and the concentration of the subject is usually focussed upon the exactitude of the pattern. The making of such design indicates the presence of anxiety in the subject.

2. **Frame Designs.** Designs which consist of a heavy frame surrounding either (a) a very weak central pattern or (b) an empty centre, tend to be found among people suffering from excessive emotional repression. (Designs made with solid centres growing outwards generally indicate reliable, well-balanced natures, while those with a solid base, tapering upwards, are more usually found among people of practical bent and ambitious nature.)

3. **Winged Designs.** A very frequent type of design is that in which the pattern is formed by two symmetrical identical halves connected by an unrepeatable centre pattern. These are called winged designs and tend to be found among subjects suffering from varying degrees of emotional dissociation.

4. **Arrowed Designs.** These when the lines go downwards are, on the whole, generally made by subjects having a tendency to depression.

5. **Incoherent Patterns.** The connection between incoherency and neurosis has already been noted. It is a very striking fact that even among adults of superior intellect, a certain percentage of incoherent patterns occur. Certain individuals of adequate mental equipment will always be found who find it impossible with the pieces presented to achieve any kind of pattern. Incoherency of this type is then associated, not with mental defect or immaturity, but with a profound degree of neurosis. It is interesting to note that in many of these cases the neurosis is covered by a superficially adequate adaptation to life.

(b) **Mental Defect.** It is beginning to become apparent that mental defectives can, by their patterns, be distinguished from normal and neurotic children by three criteria:

1. The frequent appearance after the age of six of certain of the fundamental patterns without further embellishment. (A normal child or adult may use a fundamental pattern as the basis of his design but would rarely fail to add to it.) The fundamental patterns usually made by mentally defective children are as follows:

(a) Four squares put together to make a big square.

- (b) Diamonds combined together so as to make a fishtail pattern.
- (c) Equilateral triangles arranged to make a hexagon.

2. The frequent appearance of arrangements of mosaic pieces in units of two all over the tray. This has not been observed to occur among normal children after five years old.

3. Completely incoherent patterns occurring after the age of six years.

4. The appearance of very simple forms of pattern, such as, for example, a rectangle made with squares surrounding an empty space.

Incoherence due to mental defect is to be distinguished from that due to neurosis by a complete lack of order; in that due to emotional disturbance rudiments of pattern can with care be perceived in the seeming incoherency.

### **The Mosaic Test and Temperament**

In the previous sections some indications have been given as to the relation between the type of design made and the temperament of the subject.

In matured and stabilised characters, it will be found that however much the subject may try to do so, if he obeys the rules of the test, he will be unable materially to alter the general shape of successive patterns, although these may be made at widely different dates. For example, a subject, although an artist and able to express a variety of ideas in the form of concrete patterns, will find on examination of a series of such patterns that they are all, let us say, square designs with a single raised point, though this form may be expressed at one time in a house with a chimney, at another as an engine and its funnel seen from the front. In contradistinction to this, there will be a suggestion of whirling movement about all the patterns of another subject, although the actual colour and structure of the successive abstract designs may vary greatly. Current changes of mood are reflected in the design by change of colour and alteration of detail, but these are superimposed upon a basic design which tends to remain constant.

In unstable natures, designs may vary greatly in type, the variation following the lines of development of the nature.

In many-sided natures instead of one main design a subject may be able to produce designs of two or three types, but in successive patterns the general form of these will remain constant.

In the case of subjects undergoing psychological treatment, it is normal that patterns incoherent, or partly incoherent, at the beginning of treatment, gradually achieve unity as treatment progresses.

This paper must be regarded only as a preliminary statement. The conclusions are in no way final, and extensive modifications may be later found necessary. For investigation of the validity of the test see "The Validity of the Mosaic Test" by Madeline Kerr, reprinted from the American Journal of Orthopsychiatry, Volume 9, No. 1, January 1939.

Those desiring further information are requested to communicate with the Secretary, the Children's Centre, The Institute of Child Psychology, 6, Pembridge Villas, W.11. Envelopes should be marked "Mosaics."

Boxes of the standardised material in two sizes, the larger containing 456 pieces, and the smaller 228 pieces, can be obtained from the Secretary of the above Institute at the price of 21/- and 12/6 respectively.