

## CHAPTER FOUR

### PLAN AND PROCEDURE

The need for the present investigation has already been established in the preceding chapter. This study seeks to explore and analyse certain personality dimensions which are supposed to be very relevant to creativity as indicated by research findings and creativity theorists alike. Taking a lead from Thurstone (1952) that " one of the first experimental inquiries to be made with people who have demonstrated inventive talent is to determine their mental profiles in order to ascertain whether

they have some typical characteristics," Guilford (1959) appears to have pursued studies on his Structure-of-Intellect model, particularly in respect of scientists and engineers at the University of Southern California, and V.Lowenfeld, independently and almost simultaneously, in respect of artists at the Pennsylvania State University. Strikingly enough, the intellectual "criteria for creativity" both in the sciences as discovered by Guilford and those in the arts as discovered by Lowenfeld were, in the words of Lowenfeld himself "almost exactly the same."<sup>176</sup> The criteria called flexibility, fluency and sensitivity were even identical by name also. These eight intellectual characteristics relevant to creativity have already been mentioned in Chapter II (p.130, supra). Guilford's S-I model-approach has also been adumbrated in Chapter-I (p.25, supra). Repucci (1962) has pointed out that "unfortunately, the intellectual factors do not in and of themselves, account for differences in creative ability. These intellectual factors seem to be a necessary - but not sufficient - ingredient

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176 Victor Lowenfeld in Sidney J. Parnes and Harold F. Harding (eds.), *op.cit.*, p. 12.

of creativity. A large portion of the variance in different creative abilities seems to depend upon personality factors."<sup>177</sup> MacKinnon (1967), however, sounded a more disappointing note five years later upon the structure-of intellect model approach when he said :

... In recent years, Guilford (1959) has worked on the structure of intellect and identification, by factor analysis, of several dimensions of creative thinking. The work on the latter dimensions, including adaptive flexibility, originality, and sensitivity to problems, has led to a wide-spread hope and expectation that his tests of creative ability would provide us with reliable means for identifying creative persons. So far, however, this hope has not been realised.

In an intensive study of research scientists in the U.S. Air Force (Taylor, Smith, Ghiselin and Ellison, 1961), Guilford's tests of creativity failed to predict the criterion. In our own studies, these same tests likewise have shown essentially a zero correlation with the criterion. In view of such negative findings, the use of Guilford's battery of tests of creativity potential would be questionable, to say the least.<sup>178</sup>

In view of the above dismal position with respect to the mental-profile approach suggested by

- 177 L.C.Repucci reprinted in Gary A.Davis and Joseph A. Scott (eds.), op.cit., p. 67.
- 178 D.W.MacKinnon "Educating for Creativity: A Modern Myth ? " reprinted in ibid., pp. 201 and 202.

Thurstone, it was decided to take a lead from his other alternative suggestion, which Repucci has also implicitly supported viz. that of identifying the temperamental ( or personality ) characteristics which are helpful in the identification of the creative persons. In this respect, this investigator is inclined to subscribe to the following plan suggested by Thurstone :

In the early stages of experimental studies in this field it might be best to proceed informally with the study of small groups of men whose intellectual characteristics are quite well known. As soon as promising clues are found, they might be tried out more systematically on larger groups of men whose professional achievements and intellectual idiosyncrasies are already known.<sup>179</sup>

It is hoped and expected that the present investigation would fulfil the need of obtaining some personality profiles of creative persons of India as a precursor to more intensive investigations in the future on Indian population.

Barron (1969), who was associated as research psychologist with the famous Berkeley studies of creative persons, has warned that highly creative

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179 L.L.Thurstone in S.J.Parnes and H.F.Harding (eds.), op.cit., p. 53.

individuals sometimes get very much annoyed when tests are administered on them. He has further indicated that short and time-regulated tests of creativity violate the very essence of creativity since they seek to measure the ability by scratching it on the surface only, and that in fragments. This not only cripples the gestalt of the assessment but also that "the creative process, which is behaviorally silent for long periods of time ... is easily aborted if someone is always blowing a whistle on it."

Alerted by the above observation and, further, in view of the limitation of the creativity tests discussed earlier (pp.111-12, supra) the nomination method for the selection of highly creative individuals was chosen and the Q-technique was found suitable for this investigation. The details are given below in this chapter.

The second problem which seemed necessary to tackle in the very beginning was the problem of assessing the creative individual "as a whole". The answer to this was found very pointedly in Kelly's (1969) book : Assessment of Human Characteristics.<sup>180</sup>

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180 E.Lowell Kelly, Assessment of Human Characteristics (New Delhi, Prentice Hall of India Private Ltd., 1969), p. 23.

Kelly has said that the dimensions to be selected for assessment would depend upon the purpose and nature of the research and the practical decision that has to be taken regarding the selection of the persons who are to be assessed. For the above mentioned practical consideration and for reasons of economy in time and cost, a choice had to be made with respect to the theory and variables which seemed worthy and most relevant for this study. For caution Kelly has cited an interesting analogy from Canadian humorist Stephen Leacock who once wrote of a horseman "who got on his horse and rode away in all directions". However, the limitations of the plan of this study have been given elsewhere (see p.227, infra) as we have no enthusiasm to imitate Leacock's horseman.

#### Selection and Size of the Sample

Christie (1970) has offered the following suggestion :

As it is difficult to determine in which ways success will blur the criterion and as criteria of creativity are demonstrably heterogeneous, it seems advisable to consider groups of successful creative people and use additional evidence from researches with different criteria in a supportive role. 181

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181 T. Christie, " Environmental Factors in Creativity", Journal of Creative Behaviour, IV (No.1,1970),14.

MacKinnon (1967) considers the procedures adopted by Torrance (1959), and Getzel and Jackson (1962) as "highly questionable". He says :

Both Torrance's (1959) study of elementary school children and Getzel's and Jackson's (1962) investigation of students in the sixth year through high school took as a measure of their subjects' creativeness their performance on so-called tests of creativity, a highly questionable procedure since the relation of test performance to demonstrated creative behaviour was not known. My own studies and those of my colleagues in the Institute of Personality Assessment and Research with mature, practicing members of several professions-- research scientists in industry, mathematicians, architects, and writers-- had the advantage of a much more acceptable criterion of creativity. We used the judgment of their peers, who evaluated the demonstrated creativeness with which our subjects practiced their professions.<sup>182</sup>

Historiometry -- the method of utilizing the historical data available on subjects in biographical records, autobiographies and such other original sources of information -- was used by Terman (1925) in his study of Galton and also by Catharine Cox (1926) in her study of early mental traits of geniuses. Cox

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182 Donald W. MacKinnon, "Education for Creativity: A Modern Myth?" reprinted in Gary A. Davis and Joseph A. Scott, Training Creative Thinking (New York: Holt, Rinehart and Winston, Inc., 1971), p. 196.

selected the names from the list compiled by Cattell which contained one thousand most eminent persons of history (which had been compiled by measuring the space allotted in biographical dictionaries)."<sup>183</sup>

Writing about the predictors of creative performance, C.W.Taylor and John Holland (1964) have discussed the methodological procedures and problems in a section of their paper. Writing about validation designs in that section, these authors have indicated that "R.B.Cattell (1959) reported a biographical study of eminent persons in the history of science, as an interesting exploratory approach to discovering characteristics of creative scientists."<sup>184</sup> In the same chapter elsewhere Taylor and Holland have written that "simple self-ratings by adolescents and adults have moderate validity for a variety of creative performances".<sup>185</sup> They have also written that "Terman's earlier work showed that high ratings of self-confidence, persistence, and integration toward goals were among

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183 Morris I. Stein and Shirley J. Heinze (Center for the Study of Creativity and Mental Health, University of Chicago). Creativity and the Individual (The University of Chicago: The Free Press of Glancoe, Illinois, 1960), p. 129.

184 C.W.Taylor and J. Holland, op.cit., p. 31.

185 Ibid., p. 37.

his most efficient predictors of adult achievement....  
 Self-ratings on several non-intellectual characteri-  
 -stics also had moderate validity for many of the  
 creative criteria (C.W.Taylor, Smith, Ghiselin, &  
 Ellison, 1961).<sup>186</sup>

In view of the foregoing expert opinions it was  
 decided to compile a preliminary list of highly  
 creative persons residing ordinarily in Western India.  
 Because eminence and success were considered to be the  
 chief criteria for selection, information was collected  
 from the following sources :

1. The list of National Awardees of the  
 erstwhile Bombay State ( i.e. Gujarat  
 and Maharashtra before reorganization)  
 and of Maharashtra upto 1969 ;
2. The Times of India Directory and  
 Yearbooks ;
3. India Who's Who published by the Infa  
 publications, New Delhi ; and
4. The Filmfare files.

Roe (1953) and Oden (1968) have also used eminence and  
 success as criteria for selecting creative persons for  
 their studies.<sup>187</sup>

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186 et seq.

187 T. Christie, op.cit., pp. 15 and 16.

In November 1970 a list of the recipients of Bharat Ratna and Padma National Awards ( i.e. the Civilian Awards) was obtained from the General Administration Department of the Government of Maharashtra. The list contained names of 133 persons who have won the National Awards from the year 1955 to 1969. The addresses given in the list show that they are ordinarily residents of the area covered by the old Bombay State. The break-up of the figures for each award mentioned in the list is given below :

1.	Bharat Ratna	1	
2.	Padma Vibhushan	6	
3.	Padma Bhushan	48	
4.	Padmashri	73	(including 2 names from category 3)
5.	Sanskrit, Persian and Arabic Scholars	7	
6.	'Mahamahopadhyaya' Literary Title Holders	3	
	Total ...	138	(including 2 names repeated in category 4 above)

It was also decided to incorporate some names of most successful and eminent film artists also in

the list. For this the names were selected from the files of the Filmfare on the basis of the Filmfare awards secured by the artists and their popularity. Similarly, certain names of eminent artists like dancers, sculptors and painters, which were missing in the list of national awardees, were also included in the preliminary list after consulting the Who's Who section of the Times of India Directories and the India Who's Who published by the Infa Publications, New Delhi. Care was taken to select names of only such of the eminent artists who were residents of either Maharashtra or Gujarat. Thus compiled, the preliminary list contained 166 names in all.

In the meanwhile lists of Deans of the various Faculties of the Universities of Baroda, Bombay and Nagpur were obtained. These three Universities are widely spaced in the region. Locations of these universities are shown in the map in Appendix-A. Two of them viz. the University of Bombay and the Nagpur University are old and large. The M.S. University of Baroda is the oldest of all the Universities of Gujarat, and the University of Bombay is the oldest of all the Universities of Maharashtra and one of the oldest Universities of India.

It was assumed that the Deans of the Universities have wide professional contacts and therefore a letter ( shown in Appendix-B) was addressed to them requesting for giving names and addresses of such persons whom they thought to be suitable for working as referees for selecting names of highly creative persons of different walks of life.

Letters were addressed to 25 Deans of the three Universities and a Professor Cartoonist in the form shown in Appendix-B. The list of the Deans is given in Appendix-C. Seventeen of them responded to the request finally, and one more (i.e. the eighteenth response) was received rather too very late i.e. after a year. The information received from the 17 informants in time was utilized for this investigation. The percentage of return of the communication was 68. From the information received in this way a list of 135 names and addresses of well educated and responsible persons was compiled after taking into account the common names suggested by the Deans.

The preliminary list containing names of 166 creative persons was mailed to all the 135 persons whose names were suggested by the respondent Deans.

These referees reside in different parts of the country. In addition, the list of creative persons was sent to the 17 cooperating Deans also. The list was thus mailed to 152 persons in all. The list contained names of the supposedly creative persons in continuous serial order without any classification into categories of any kind. The 152 referees were requested by a covering letter (Appendix-D) to check those names which they considered to be highly creative in their best judgement. The following operational definition constructed by this investigator was printed on the covering letter :

" Creativity may be defined as the manifestation of uncommon talent in terms of novel and original products ( whether ideas or effects ) commanding high professional estimate of their worth."

Up to the time of analysis 57 (37.5%) of the questionnaire-checklists were duly returned after checking the names. Four more (2.6%) responses were received thereafter i.e. in April, 1971 onwards. Eighteen respondents added 88 new names (Appendix-E) to the list, some of which were common to the lists of two or more of such respondents. Frequency of the check-marks was counted for each name out of the final list of  $166 + 88 = 254$  creative names. Out of the 152 questionnaire check-lists mailed, 6 were returned undelivered by the Postal Department for the reason that the addressees were not

traceable.

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An analysis of the returned questionnaire check-lists showed that 66 names could be retained in the list for the top 25 ranks when arranged in order of frequencies of the pooled nominations allotted to the 255 names by the 57 respondents. The highest four ranks went to the eminent persons listed below :

Sr.No.in the list	Rank	Name	Frequency of mark
2	1	:Shri J.R.D.Tata	51
137	2	:Shri V.Shantaram	50
35	3	:Shri Ravi Shankar	49
32	4	:Shri Vikaram Sarabhai	46

It is thus seen in this investigation that the top four ranks were allotted to the following categories of persons as identified by their pursuits :

Rank	Pursuit
1	: Industrialist - Engineer
2	: Film Director - Actor - Producer
3	: Instrumental Musician
4	: Scientist.

This investigator felt assured that the respondents had very carefully scored the questionnaire check-list. This was evidenced from the following facts:

- 1) The ultimate ranking did not reflect any bias, an industrial engineer ranking as closely as a film-director or a musician ranking as closely as a scientist.
- 2) Most respondents had detected repetition of two names in the list (common names for Padma Bhushan and Padmashri awards) and pointed out the fact in their communication.
- 3) Several respondents wrote covering letters or slips or notes conveying their reaction to this investigation. Many of them wrote very encouragingly and desired to be informed about the findings of this investigation. There was, however, one exception to this : one respondent very promptly returned the check-list without scoring it but with the following remark :

" I regret that the definition of 'creativity' as well as juxtaposition of names dramatically

varying in terms (both kind and degree) of 'creativity' (defined by you) are not convincing enough to validate any research in this direction, thus allow me to dissociate myself from such a project."

This investigator wishes to record here that the said respondent happens to be a remarkable sculptor. He is a young university teacher.

As indicated earlier, in all 66 persons had secured the first 25 ranks in the opinion poll. The names and addresses of these 66 persons who were adjudged highly creative are given in Appendix-F. Column (1) indicates the rank of each one of them. The last column shows the area of their creative endeavour. Letters of the form given in Appendix-G were sent to 62 of them, barring only those three persons whose names are marked with an asterisk. The reason was that the news-papers had just carried the unfortunate news of the sudden demise of Dr. Vikaram Sarabhai, the eminent scientist who had been ranked fourth in the opinion poll. Mrs. Mrinalini Sarabhai, the famous dancer ( whose name appears at serial number 8 in the same list) happens to be the widow of Vikaram Sarabhai. Dr. Shirodkar was known to have been dead while the mailing list was being prepared.

It was found that many of the 63 persons who were approached with a request to cooperate in the research by Q-sorting the cards were not available for such contact for one or more of the following reasons:

- 1) Infirmity of old age ;
- 2) Sickness ;
- 3) Death ;
- 4) Mobility and consequent change of address ;
- 5) Tour abroad ;
- 6) Inability of the person approached to spare time for this research because of extremely busy time on account of pressure of work ;
- 7) Non-response.

Finally only 22 highly creative persons could be contacted personally from out of the list of 63. Their names and other particulars are given in Appendix-H. All these 22 persons seemed most willing to Q-sort the cards. Finally, however, completed data could be collected from only 17 of them. These persons seemed to be very curious about this research. Most of them also seemed to be very confident about the creative value of their contribution. The names of the 5 persons from whom useful data could not be collected are marked with

asterisk. The reasons for the failure to obtain data from these five persons are indicated in Appendix-I against the name of each one of them.

For the following reasons it was not considered proper to approach the persons who had obtained lower ranks in the opinion poll :

- 1) that there was apprehension of the same experience of 'hit-and-miss' being repeated with the result that many of them could not have been contacted inspite of great expenditure of time and effort; and
- 2) that it could not be predicted whether the persons who would ultimately have been available for the study, would really have been of much value from the point of view of validation. For example, it was difficult to say whether another dancer or social worker or poet would certainly have been available for study if the procedure for choosing them would have again been the same as for the first 17 persons.

It was realised that data from only 17 highly creative persons would have been a little too scanty for the findings to be of any scientific value. But

there did not seem to be any less cumbersome method available for securing data from the remaining persons in the sample. After careful thought it was therefore decided to consult the Who's Who Section of the Times of India Directory, India Who's Who and the Who's Who of Indian Writers and such other sources of information available in the library to select some more names on the basis of comparable achievements. Finally, 24 more persons could be contacted and further data could be collected from them ( See Appendix-H ; S.No.64 onwards). Effort was made to select persons this time with an eye to validation possibilities. In this context it is useful to heed the following advice given by Stephenson:

In Q-technique we are free to choose the experimental persons with an eye to validation possibilities. They need rarely be chosen at " random" from the "general population", whatever that may be.

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The statistician would take the view that any facts discovered for these few persons would permit valid inferences to be drawn about them, but not about other persons, unless some sampling conditions have been specified.... If general conclusions are drawn from their results, they must be on grounds which depend as much on the total scientific situation (Kaufmann) as upon any formal sampling conditions as far as persons are concerned.

The grounds, indeed, will be in terms of the factors, their simple structure, if any, and the insights they provide. All these, in our view, comprise the scientific situation along with the credibility of these classes of persons as such; an abduction will be drawn from this total situation and not from statistical inference alone. 188

Finally, however, 38 persons actually participated in the experiment successfully. Edited bio-data records in respect of 35 of these persons are given in Appendix - J. Bio-data records of the remaining three persons viz. (1) Dr. Shivaji Ganesh Patwardhan, (2) Smt. Sitara Devi, and (3) Shri I.S. Johar were not available. During personal interview Dr. Patwardhan insisted that he did not like to give any such thing like his bio-data record because he did not believe in anything which appeared to carry any publicity value. It will be seen from the bio-data records that all the creative persons selected later, without the opinion poll, have comparable achievements entitling them sufficiently to be included in the array of highly creative persons.

The Method of Study :

The Q-methodology was selected for this study, a justification for which has been given in Chapter III, supra. Moreover, no study of creativity employing the Q-technique appears to have been conducted in India as yet.

The Tools and the Sample:

As the Q-technique was selected for the present investigation, it was considered proper to test Jung's typology vis-a-vis creativity. Hence the following balanced block design adumbrated by Stephenson was adopted :

Independencies	Levels	No.	D.F.
X, "Attitudes" ...	(a) Introversion (b) Extra-version	2	1
Y, "Mechanisms" ...	(c) Conscious (d) Unconscious	2	1
Z, "Functions" ...	(e) Thinking (f) Feeling (g) Sensation (h) Intuition	4	3

This led to 16 (2 x 2 x 4 ) combinations of independencies, one level at a time.

These combinations were clothed each in a statement in the first person form. These statements were largely based on Stephenson's selection of Jung's statements contained in Jung's Psychological Types. It was also considered proper to have five replications of these 16 combinations and, therefore, 80 statements in all were selected largely on the same basis, including, of course, 16 statements specifically related to creativity as evidenced by previous researches. The statements were, in fact, selected out of a large pool and after several revisions. They were further scrutinized and modified by a committee of 4 judges holding Master's Degree in Psychology and some research and teaching experience. The statements were then printed on separate cards of size 9 cms. x 5½ cms. of Japan Ivory Paper. Type size was point 10 . Thus they were ready for administration. In the Q-technique these statements constitute the sample. The number of words ranged from 3 to 21 in these statements. The preliminary list and the final list of statements are given as Appendix-K and Appendix-L respectively. The printed cards are provided in the Appendix-M in plastic cover. Besides these cards, there were 11 envelopes of size 12 x 9 cms. for distribution of cards into the Q-sorts.

Procedure of the Experiment :

The investigator visited each one of the selected persons by obtaining prior appointment. The places visited in this connection are shown in the map in Appendix-N. The selected creative persons (called the operators) were given the pack of 80 cards containing the statements. They were requested to shuffle the cards thoroughly and then to read all the statements. They were asked first to sort and pile them into three decks according to these three categories : (a) those which are definitely positively applicable to oneself; (b) those which are not so applicable to oneself; and (c) those in-between. Doubtful cards or those which were half-way true were also put in the middle pile. Then they were asked to distribute the cards into eleven piles (Q-sorts) according to the significance of each statement to one's own self from his internal frame of reference and as per the following forced-choice quasnormal distribution:

	Most Applicable					Least Applicable					
Score	10	9	8	7	6	5	4	3	2	1	0
Frequency	2	4	6	9	12	14	12	9	6	4	2
	(n=80)										

The operators were free to consult the cards and to shift them from one sort to another as often as they liked. The sorted cards were put into 11 separate envelopes, then tabulated in the score board later, at leisure.

Each operator was also requested to fill up a small self-data card (Appendix-O ). Incidental observations made by this investigator were also noted separately soon after the experiment for consultation later. Standard instructions were given to the experimental persons in the form shown in Appendix-P. Questions of the persons were also answered as and when asked.

### The Magnitude of the Field Work

#### a) Testing Time :

An attempt was made to estimate the approximate time devoted for administration of the Q-test. It was observed that the time spent with the Ss for the purpose ranged from 1 hour 5 minutes to 3 hours 20 minutes. A few Ss required two sittings- one for formalities and the next one for the actual Q-sort operation. Majority of the Ss took around 1 hour 10 minutes for operating the cards and another 10-20 minutes for filling the data

card and answering questions given therein. Total time spent in contact with the Ss comes to about 100 hours approximately. Testing started in March, 1972 and terminated in May, 1973.

b) Test Space :

The testing involved nearly 5000 Kms. of travel. Some places had to be visited twice or thrice depending upon the appointments available with the Ss for this work.

Scope and limitations of the present study:

I. Scope :

It has already been pointed out in Chapter II and III in the beginning paragraphs that in India any attempt has hardly been made thus far to gather information regarding the personality attributes of creative persons by using the projective techniques or any other. This investigation seeks to fill a void in this respect in the area of creativity research by probing into the self-psychologies of highly creative persons of various walks of life. In this study an attempt has been made to obtain responses of 38 highly creative persons living in the Western part of India.

Some of these creative persons are pursuing their creative work of the verbal type and the rest are pursuing work of the non-verbal type.

The Q-sort data and additional information collected from the information cards filled by the Ss give the judgments of the Ss about themselves made from their own internal frame of reference. In other words, these judgments give a spectrum of the self-psychology of each one of those creative persons who have Q-sorted the cards in this research. The spectrum of the self-psychology of each subject indicates the significance of each of the personality-dimensions introduced in the design of the research for him as perceived by himself. This affords an opportunity to compare data almost as closely as in projective techniques, but, perhaps, much more directly. This investigation has, therefore, provided rich information in respect of deeper and subtle under-currents of those aspects of the personality of each one of these creative persons which would otherwise have been difficult to obtain without offending their feelings. Similarly, information is richly available now by the Q-technique to probe into the possibility of ascertaining what inner motivations, cravings or combinations of

temperamental attributes are responsible for making a particular kind of creative persons.

II. Limitations:

The present investigation suffers from the following limitations :

- i) The present investigation is confined to only 38 creative persons living in Western India.
- ii) The investigation is limited to eminent and/or well-known creative adults.
- iii) The investigation is restricted to only English-knowing creative persons.
- iv) The study is confined to only a section of our creative population; persons working in areas like advertising and architecture could not be included in the present study for some reason or another.
- v) The investigation reflects only the self-psychologies of the Ss at the moment. It has not taken into account the possible fluctuations of moods and integrity of the Ss while reacting to the Q-sort items.

- vi) The design of this study is confined essentially to one theory viz. the Jungian Type-Theory of Personality.
- vii) Objective data, as might be culled from others' observations, were not gathered in this investigation. Incidental observations of the investigator alone are available as 'objective' data in this research.
- viii) The scores obtained in this investigation are ipsative scores, in contrast with normative scores.
- ix) It is true that many Ss liked the method and all of them Q-sorted the cards with diligence and care. However, a few Ss complained about the forced choice feature of Q-sorting.
- x) A few Ss indicated that they were unable to appreciate how the card bearing No.80 belonged to the set. In their judgment, the card was perhaps defective.
- xi) One subject said that the items in general did not seek to fathom the operations of the mind deep-enough.

- xii) The Q-set of this investigation contained only 16 items directly relating to the act of creative activity.
  
- xiii) The approach of this study is neither a product-approach nor a process-approach; it is merely a person-approach.