METHODOLOGY
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The procedure or method adopted to conduct any study is an important phase of research of the procedure followed; Methodology systematically and scientifically there shall be no difficulty in achieving aims and objective of the study.

A methodology is instantiated and materialized by an act of methods, techniques and tools. A tool is an instrument and apparatus that is necessary to the performance of some task. Methodology may be a description of process or may be expanded theories, comment or ideas as they relate to a particular field of inquiry.

Methodology may refer to nothing more than a simple set of methods or procedure, or it may refer to the rational and the philosophical assumption that underlie a particular study relative to the scientific method. For example scholarly literature often includes a section on the methodology of the researcher.

Methodology is a body of practice, procedure and rules used by those who works in a discipline or engage in an inquiry, a set of working methods. Methodology can be (1) The analysis of the principle of methods rules and postulates employed by a discipline (2) The systematic study of methods that can be applies within a discipline. (3) The study or description of methods.

A methodology doesn’t describe specific methods nevertheless; it does specify several processes that need to be followed. These processes constitute a generic framework. They may be broken down in sub processes, they may be combined or their sequence may change. However any task must clearly out these processes in one form or another.

A methodology is not a formula but a set of practices.
Definition of Methodology:

According to American Hwtaqe Dictionary, "Methodology is the study or theoretical analysis of such working methods or the branch of scientific method that deal with the general principles of the formation of knowledge".

The most fundamental steps in research is to develop a systematic planning for investigation. Determining such type of planning is called the "Research Design".

Mulay and Subarathaman, (1980) defined it as "A research is arrangement of condition for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure."

A systematic procedure was adopted for conducting the present investigation the complete methodology followed to achieve the objective is given under following heads.

3.1 Locale of the study
3.2 Research Design
3.3 Selection of the sample
3.4 Tool used in study
3.5 Variable of the study
3.6 Procedure of Data collection
3.7 Statistical Analysis

3.1 Locale of the Study:

Bulandshahr city was selected as the locale for the purpose of investigation.

3.2 Research Design:

A preliminary and most fundamentals step in research is to determine a "Research Design" Kerlingers defines, "Research design as the plan, structure and strategy of investigation so as to obtain answer to research question and to control variance
sampling is the most important phase in any research work or require phase in any research work. It requires great care to get good and correct results.

### 3.3. Selection of the Sample:

Multistage stratified sampling technique will be used for the selections of the adolescents in the present study. Bulandshahr city was selected purposely as it is convenient to the researcher and need of the study in the first stage.

Bulandshahr city consists four degree colleges.

1. D.A.V. Degree College, Bypas Chauraha, Bulandshahr.
2. I.P. Degree College, Syana Road, Bulandshahr.
3. Muslim Girls College, Lalababu Chauraha, Bulandshahr and
4. G.S.K.M. P.G. College, Railway Road, Bulandshahr.

Out of these colleges, two colleges namely, I.P. Degree College, Syana Road, Bulandshahr and G.S.K.M. P.G. College, Railway Road, Bulandshahr were selected randomly in the second stage. Each selected colleges consists of 1000 students studying in graduate classes. Out of these students in the selected colleges 150 each student aged 18 to 21 years studying in graduate classes were selected in third stage. Thus, 300 students aged 18-21 years studying in graduate classes were the unit of information for the present study.

### 3.4 Tool used in the Study:

Well conducted research postulate sufficient reliable and valid facts which are obtained through a systematic procedure by use of certain data collecting device.

According to Dr. Mosa "Tools are the systematic way for the social scientist to be used to get reliable fact related to research field".

(56)
According to Good and Halt, "The interview is an a sense the foundation upon which all other element rest for it is in the data gathering phase" and A schedule is the name usually applied to a set of question which are asked and filled by an interviewer in a face to face situation.

In the present study one interview schedule developed by researcher containing general information about respondent and mass media was used.

One standardized schedule namely verbal test of creativity thinking (TCW) by Baqer Mehdi was used to asses the creativity of late adolescents for collecting data.

**Reliability of the Test** (Verbal test of creativity thinking) The test retest reliabilities of the factor scores and also the total score were obtained on a sample (n=31) both the factor score and total creativity score reliabilities are considerably high ranging from 0.896 to 0.959.

The validity coefficient for factor score and the total creativity scores are high enough (Significant beyond 0.01 level).

**Procedure for Scoring:** As there is no right or wrong responses for the test, much care has to be exercised at the time of scoring. The scorer has to acquaint himself fully with the method of scoring and the use of scoring sheet.

**The following points have to be kept in mind while scoring:**

1. Each item is to be scored for fluency, flexibility, and originality. The definitions of these terms are given below:

   **Fluency** - Fluency is represented by number of relevant and unrepeated ideas which the testee produces. Relevance is judged on the basis of the appropriateness of the response when considered in relation to the test problem. An unrepeated idea is one which has been expressed only once under a given problem.

   **Flexibility** - Flexibility is represented by a person’s ability to produce ideas which differ in approach or thought trend. All ideas which fall under one category of approach or thought trend are treated as one for purposes of flexibility scoring. Thus if five ideas are produced and all belong to only one category of approach or thought trend, then the score for flexibility will be one, but if all the five ideas are based on five different
approaches or thought trends, then the flexibility score will be five. There could be intermediate scores for flexibility depending on the number of categories of thought trends to which the responses belong.

**Originality:** Originality is represented by uncommonness of a given response. Responses given by less than 5% of the group are treated as original.

2. The scores may be directly entered on the answer sheet by closely following the scoring guide.

3. If the score comes across responses which are not mentioned in the scoring guide, he should briefly mention them on the backside of the scoring sheet and score them for originality after all the test scripts have been scored. The instructions for scoring the new responses for originality are also given on the scoring sheet.

Flexibility categories for such new responses will also have to be determined at the time of scoring. If the new response falls in a category which is already given in the scoring guide, the same should be used. But if the new response seems to belong to an entirely new category then a new alphabet serial should be used for scoring.

**Instruction for Scoring:**

1. **Scoring for Fluency** - In scoring for fluency, the scorer should go through the responses to the item in question carefully and strike off those which are irrelevant and/or have been repeated. He should then count the remaining of responses and enter this number as the fluency score for the item in the appropriate box in the scoring sheet.

2. **Scoring for Flexibility** - In the scoring for flexibility, the scorer should first acquaint himself with the categories of responses given for each item in the scoring guide. For convenience sake, he should note in bracket against each response the alphabet serial of the category to which it belongs. If he comes across a response which has not been mentioned in the scoring guide, he should himself determine the category to which it would seem to belong. If the response is such that it belongs to an entirely new category not considered in the scoring guide he should give it a new alphabet serial, and note it down in bracket against the response in question. After he has gone through all the
responses to a given item, he should see how many different categories have been used by the testee. This can be easily determined on the basis of the number of different alphabet serials used. The flexibility score will be the total number of different alphabet serials used. Thus if out of eight responses given by the testee to an item two have been given under category A, three have been given under category B, one has been given under category C, and two have been given under category D, then the flexibility score for this item will be four.

(3) Scoring for originality - As has been said above, originality scoring is done on the basis of statistical uncommonness of responses. The more uncommon the response, the higher the originality weight. The weights for originality scoring have been determined on the basis of the following scheme. If a response has been given by 1% to 99% of the testee, then the responses will get an originality weight of 5; if a response has been given by 1% to 99% of the testee, then the responses will get an originality weight of 5; if a response has been given by 1% to 1.99% of the testee, then the response will get an originality weight of 4; if a response has been given by 2% to 2.99% of the testee, then the response will get an originality weight of 3; if a response has been given by 3% to 3.99% of the testee, then the response will get an originality weight of 2 and if response has been given by 4% to 4.99% of the testee, then the response will get an originality weight of 1 Responses given by 5% or more of the testee will get originality weight of Zero.

In the scoring guide, the originality weights have been mentioned for all the original responses, and should be used as such. They are based on a sample of 300 urban children of Aligarh City studying in classes VII and VIII. It is difficult to say that all possible original responses have been obtained. However, if the test user find in his own sample, certain responses which have not been mentioned in the scoring guide he scoring note them down separately on the reverse side of the scoring sheet, and when he has scored all the answer scripts he should work out of the originality weight for those responses on the basis of the scoring scheme given above, and then add these scores by putting a plus sign in the appropriate box where he has already noted the originality scores based on the originality weights given in the scoring guide.

Scoring Summary: A table has been provided in the scoring sheet to summarize the scores for fluency, flexibility and originality obtained by the testee on difficult activities. The total fluency, flexibility and originality scores have to be entered in the appropriate columns on the table. The composite creativity scores should be entered after
converting the raw scores into standard scores. This is necessary because the standard deviations of the three scores sometimes markedly vary, and if raw scores are added up then the ranking will be greatly affected.

The standardized schedule namely personality inventory by Dr. Y. Singh used to assess the personality of late adolescents for collecting of data.

Jung’s typology is a part of his system of analytical psychology. Jung believed that the normal mind is expressed during either serious tensions or rational thinking. When one or the other modality predominates, the individual is said to be either a thinking type or an emotional type. Generally speaking, the thinking type is introverted and the emotional type is extroverted. The introvert as we shall see tends to retreat from the external world and to engage in meditation is observed in his own thoughts, and generally approaches life from the stand point of his own personal or 'subjective' values. The extrovert on the other hand, is oriented toward the external world of objects and people. He is a doer rather than a 'thinker'. His subjective life is oriented by and related to the object, rather than to himself.

Reliability: As it is evident from the Table 1, that test has high reliability coefficients both from split-half (first half compared with second half) and test retest methods.

Scoring Procedure:

Extroversion: Count ‘Yes’ mark on questions with asterisk mark and ‘No’ mark on, questions (marked) without asterisk. One mark for each question mentioned above is to be scored. The total marks will represent the extroversion category on the percentile norms Table 5. The maximum possible score may be 56.

Introversion: Count ‘No’ marks on questions with asterisk mark and yes mark on questions without asterisk. Assign one mark for such questions. The total score will represent the introversion category of the individual on the percentile norms given in Table 5. The maximum possible score may be 56.

Validity: The test was validated against external criterion- Dr. Jalota and Kapoor’s Hindi adaptation of Maudsley’s personality Inventory. Both tests (Vyakitva Mapani and Hindi adaptation of Maudsleys P.I.) were administered together upon a group of 100 students
of undergraduate class of R.B.S. College, Agra. Age range of students was 17-25 years and included both male and female students. Table 2 gives the index of validity.

3.5. Procedure of Data Collection:

The researcher selected two colleges out of four degree colleges, namely I.P. Degree College for male, G.S. K.M. Degree College for female. After that researcher contacted the principle of these colleges and get permission granted for taking interviews. There after researcher contacted to teacher and then students. Out of 1000 female and 1000 male students, researcher selected 150 female and 150 male students aged 18 to 21 years from graduate classes.

Having selected the students, the next step was providing them induction about the interview. The purpose of the study was explained to them to win this confidence and co-operation. All the students were asked to give unbiased and truthful responses. After that interview was started.

In this procedure one interview schedule prepared by researcher containing General information about students and his/her awareness in mass media along with the two standardized tools (verbal test of creativity Thinking by Baqer Mehdi and Personality Inventory by Y.V. Singh) to get the accurate result on the study.

The interview schedules as well as responses on tools were evaluated by investigator as per the instruction given in tool manuals. This completed process took around 6 months.

3.6 Variable of the Study:

The variable of the present study have been divided under the following heads:

3.6.1. Independent Variables:

Acc to Kerliger (1990) "An independent variable is the presumed cause of dependent variable The independent variables of the present study were Age, Sex, type of family, caste, birth order, family income.

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3.6.2. Dependent Variable:

According to Kerlinger (1990), "Dependent variable is to presumed effect of an independent. The dependent variables of this study were one interview schedule and two standardized tools of creativity (Verbal test of creativity Thinking by Baqer Mehdi and tool for personality Inventory by Y.V. Singh.

3.7 Statistical Analysis:

The collected data were coded, tabulated and analysed using various statistical techniques. The statistical tests were used to know the relationship between dependent and independent variables among the various group of study. The significance level was used as 5% for rejection the hypotheses. Specific purpose for which tests were used have been given in table.

Table 3.7.1: Statistical tests used and their purpose.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Statistical tests</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Percentage</td>
<td>To study the distribution of both dependent and independent variables.</td>
</tr>
<tr>
<td>2.</td>
<td>Arithmetic Mean</td>
<td>To study the central value</td>
</tr>
<tr>
<td>3.</td>
<td>Standard deviation</td>
<td>To know the variability among the observations.</td>
</tr>
<tr>
<td>4.</td>
<td>t-test</td>
<td>To test the difference of two means.</td>
</tr>
<tr>
<td>5.</td>
<td>Correlation coefficient</td>
<td>To determine the relationship between dependent and independent variable.</td>
</tr>
<tr>
<td>6.</td>
<td>t-test for correlation coefficient</td>
<td>To test the level of significance of correlation coefficient.</td>
</tr>
</tbody>
</table>
The tests used are described below

(1) Percentage:

Single comparisons were made on the basis of the percentage. For drawing percentages the frequency of a particular cell was multiplied by 100 and divide by total number of respondents in that particular category to which they belonged.

(2) Arithmetic Mean:

Arithmetic mean is the average used in the present study. "Arithmetic mean of a series if the figure obtained by dividing the total values of various items by their number." (Elhance, 2008)

\[ \bar{X} = A + \frac{\sum fu - \sum f \times i}{\sum f} \]

where, \( \bar{X} \) = arithmetic mean

\( A \) = assumed mean

\( \sum fu \) = product of frequency and deviation from the assumed mean

\( i \) = class interval

\( \sum f \) = total frequency.
(3) Standard Deviation:

It is usually denoted by the letter (small sigma) of the Greek alphabet and is a measure of dispersion. Standard deviation is the square root of the arithmetic mean (average) of the squares of the deviations measured from the mean or assumed mean. (Elhance, 2008)

\[
\sigma = \sqrt{\frac{\sum fu^2 - (\sum fu)^2/n}{n-1}}
\]

where, \( \sigma = \) Standard deviation.

\[\sum fu^2 = \text{Sum of the product of frequency and square of deviation from assumed mean.}\]

\[\sum fu = \text{sum of the product of frequency \& deviation from assumed mean}\]

\[n = \text{number of observations}\]

\[i = \text{class interval}\]
(4) Test of Significance:

t-test can be expressed as -

\[ t = \frac{|\bar{X}_1 - \bar{X}_2|}{C.S.E} \]

where \( \bar{X}_1 \) and \( \bar{X}_2 \) are the means of the first and second group.

C.S.E. means combined standard error. It is calculated by the following formula:

\[ C.S.E = C.S.D. \sqrt{\frac{1}{n_1} + \frac{1}{n_2}} \]

Where \( n_1 \) and \( n_2 \) are the number of observations in the first and second group respectively. C.S.D. is the combined standard deviation. It is calculated by the following formula:

\[ C.S.D. = \sqrt{\frac{(n_1 - 1) \sigma_1^2 + (n_2 - 1) \sigma_2^2}{n_1 + n_2 - 2}} \quad \text{if} \quad n_1 \leq 30 \quad n_2 \leq 30 \]

\[ C.S.D. = \sqrt{\frac{n_1 \sigma_1^2 + (n_2 - 1) \sigma_2^2}{n_1 + n_2 - 1}} \quad \text{if} \quad n_1 > 30 \quad n_2 \leq 30 \]

\[ C.S.D. = \sqrt{\frac{(n_1 - 1) \sigma_1^2 + n_2 \sigma_2^2}{n_1 + n_2 - 2}} \quad \text{if} \quad n_1 \leq 30 \quad n_2 > 30 \]

(65)
C.S.D. = \sqrt{\frac{n_1 \sigma_1^2 + n_2 \sigma_2^2}{n_1 + n_2}} \\

C.S.E. = \sqrt{\frac{\sigma_1^2 + \sigma_2^2}{n}} \\

\( \sigma_1 \) and \( \sigma_2 \) are standard deviations of first and second group respectively.

(5) Correlation Coefficient (r):

A mathematical method of measuring the intensity and magnitude of linear relationship between two variables of the series was suggested by Karl Pearson (1936).

The coefficient of correlation or the product moment correlation is calculated by the following formula -

\[
r = \frac{n \sum \sum fuv - \sum fu \sum fv}{\sqrt{n \sum fu^2 - (\sum fu)^2} \sqrt{n \sum fv^2 - (\sum fv)^2}}
\]

Where, \( r \) = stands for correlation coefficient,

\( n \) = number of observations.
\[ \sum \sum fuv = \text{sum of the product of deviation of } x \text{ and } y \text{ variables with their frequencies} \]

\[ \sum fu = \text{sum of the product of deviation of } x \text{ variable with the frequency.} \]

\[ \sum fv = \text{sum of the product of deviation of } y \text{ variable with the frequency.} \]

\[ \sum fu^2 = \text{sum of the product of squares of deviation of } x \text{ variable with the frequency.} \]

\[ \sum fv^2 = \text{sum of the product of squares of deviation of } y \text{ variable with the frequency.} \]

(6) Formula for testing correlation coefficient by t-test:

\[ t = r \sqrt{\frac{n - 2}{1 - r^2}} \]

n is the number of observations.

r is the correlation coefficient.