Creativity: An All-Embracing Ability

Shaista Fatima
Research Scholar,
Department of Humanities & Social Sciences,
Motilal Nehru National Institute of Technology, Allahabad

Dr. Ambalika Sinha
Associate Professor,
Department of Humanities & Social Sciences
Motilal Nehru National Institute of Technology, Allahabad

ABSTRACT
In the current scenario every sphere of one’s life demand an individual to be more creative which has become imperative to survive in this competitive world much akin to Darwin’s ‘survival of the fittest’ phenomenon, whether creativity is possessed by some special class of people or is it an all embracing ability which can be honed through practice is the issue addressed in the present work. For the purpose of carrying out the study, Creativity in individuals (Adults) has been studied in relation to four demographic variables viz. Levels of Age, Gender, Income levels and Occupation, the area under study is Allahabad district in Uttar Pradesh, India. Correlation technique & Chi-square test has been employed for carrying out statistical analysis, findings are reported, discussion has been made and recommendations are given by the authors.

INTRODUCTION
The term Creativity has been constructed differently by different researchers and there is no one such definition of creativity on which every researcher has agreed upon. The present study focuses upon creativity in individuals and construes creativity to be a “learned ability that enables us to define new relationships between concepts or events, which seemed apparently unconnected before, and which results in a new entity of knowledge” as was envisaged by European Commission in 1998.

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For the purpose of carrying out the study, Creativity in individuals has been studied in relation to four demographic variables viz. Levels of Age, Gender, Income levels and Occupation.

SCOPE OF THIS STUDY
This study holds importance for students of behavioral sciences & researchers who aim to develop a better understanding of human beings as a creative person
This study holds importance for organizations which aim at gaining an insight into the relation of Demographic variable such as Age, Income, with behavior/output of its members/employees.

RESEARCH OBJECTIVES
To elucidate the concept of creativity.
To determine the impact of demographic variables on creativity.

REVIEW OF LITERATURE
Studies on creativity and demographic variables are numerous but have contradictory findings, an in-depth review of the related studies have been done by the authors, some of which are mentioned below-
It was concluded by Abra J. (1989) that creativity can change in form in different age levels; this study is found to contradict the findings of Alpaugh et al (1982) which found that creativity is higher in young adult females as compared to old aged females. A more recent study by Chi Hang Wu et al (2005) which concludes that creativity increases as age of an individual increases is contradictory to the findings of Abra and Alpaugh. Sasser et al had findings similar to Abra J. and it was found that different stages of life-span are characterized by different kinds of creativity.

Findings from Kaltsounis’ study on Race, socioeconomic status and creativity (1974) pointed out that economically disadvantaged children were a little bit more original than other children while Ross’ (1963) found no significant differences between creativity of children belonging to economically backward and economically sound families.

The analysis of studies by Helson (1966); Littlejohn (1967); Stringer (1967); Hall & MacKinnon (1969); Urbina et al (1970); Harrington & Anderson (1979) revealed that Sex related differences in some cases were positively and sometimes negatively related to creativity.

RESEARCH GAP
From the review of relevant literature following gaps have been identified:
The studies on Age and Creative abilities are numerous but have contradictory findings, some state that age has impact over creativity of individuals while others say that creativity does not change with increasing age. An example of the aforementioned contradiction - the studies of Abra J. (1989) & that of Alpaugh et al (1982) as mentioned in the literature review section earlier.
The studies on Gender and Creativity are many but have contradictory findings; some state that sex related differences has an impact over creativity of individuals while others say that it does not have an impact over creativity of individuals. An example of the aforementioned contradiction- the studies of Hall & MacKinnon (1969) & that of Urbina et al (1970) as mentioned in the literature review section earlier.
The researcher has come across studies on creative potential as related to fields of arts and science and technology but did not come across study on relation of occupation one is in to individual level of creativity.
The researcher has come across studies that relate socio-economic status to one’s creativity which found no association between the two variables but the researcher did not come across any study which relates income in specific to the individual level of creativity.

RESEARCH HYPOTHESES
From the review of relevant literature and identification of research gaps, following null hypotheses have been formulated-
H01: Individual level of creativity does not vary with Age.
H02: Gender differences do not impact creativity in individuals.
H03: Creativity in individuals does not depend upon the occupation one is in.
H04: Income level of individuals and their creativity are not related.

RESEARCH METHODOLOGY
This study is an Empirical research based upon Descriptive research design.
Sample design
Sampling method: Non-probability, convenience sampling
Sample size: 100
Participants: Adults in the city of Allahabad in India.
Data collection: Primary data was used which was collected through survey method using structured questionnaire which was administered to general public of Allahabad and included people from areas of Civil lines, G.T.B. Nagar and Teliyarganj in Allahabad. Data was collected through personal visit therefore, hundred percent responses were received.
Data Analysis and Interpretation:
The tools used for data analysis comprises charts, graphs, tables on Ms Excel & SPSS.
The techniques adopted for data analysis & interpretation comprises descriptive statistics, reliability analysis correlation technique & chi-square test.

The collected data was tabulated and analyzed carefully for calculating internal consistency. The questionnaire on Individual level of creativity had sixteen statements which assessed creativity in individuals and each statement had five responses which were scored in the following manner:

(i) Very Often  5
(ii) Often      4
(iii) Undecided 3
(iv) Rarely     2
(v) Not at all  1

In order to interpret the findings obtained from each statement the following criteria was adopted. The summated score on Individual level of creativity questionnaire of each respondent was calculated; higher scores indicated higher creativity while lower scores indicated lower creativity. The maximum score which could be achieved on the Individual level of creativity questionnaire was 80, this score was divided into the five levels viz. very low creativity (0-16), low creativity (17-32), Moderate creativity (33-48) , High creativity (49-64) & Very High creativity (65-80).

HYPOTHESES TESTING

H01: Individual level of creativity does not vary with Age.

To test the hypothesis, levels of age as obtained from the questionnaire is correlated with individual levels of creativity using Spearman’s ρ (rho) facilitated through SPSS. The following output was achieved:

<table>
<thead>
<tr>
<th>Age of respondent</th>
<th>Correlation Coefficient</th>
<th>Sig. (2-tailed)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.000</td>
<td>.063</td>
<td>.533</td>
<td>100</td>
</tr>
</tbody>
</table>

Interpretation:

Since the correlation is found to be 0.063, correlation is too low to be meaningful, and is not significant at 0.05 level, hence the null hypothesis H1 is true and accepted i.e. Individual level of creativity does not vary with Age.

H02: Gender differences do not impact creativity in individuals.

To test the hypothesis, Gender differences was correlated with creativity score using Pearson’s correlation. The following output was achieved:

<table>
<thead>
<tr>
<th>Gender of respondent</th>
<th>Creativity score</th>
<th>Creativity score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>1</td>
<td>.081</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.426</td>
<td></td>
</tr>
</tbody>
</table>
Gender of respondent | N | Pearson Correlation | Sig. (2-tailed) | N |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100</td>
<td>.081</td>
<td>.426</td>
<td>100</td>
</tr>
</tbody>
</table>

**Interpretation:**
Since the correlation is found to be 0.081 (close to zero), correlation is too low to be meaningful, and is not significant at 0.05 level, hence the null hypothesis H2 is accepted i.e. Individual level of creativity does not vary with Gender of individual.

**H03: Creativity in individuals does not depend upon the occupation one is in.**
In order to find association that might exist between creativity in individuals and the occupations (nominal variable) they are in, Chi square test is employed. For the ease of testing, instead of creativity scores levels of individual creativity are considered.

**Table-3: Output of Chi-square test obtained through SPSS.**

<table>
<thead>
<tr>
<th>Chi-Square</th>
<th>Occupation of respondent</th>
<th>levels of creativity score</th>
</tr>
</thead>
<tbody>
<tr>
<td>58.640a</td>
<td>85.040b</td>
<td></td>
</tr>
<tr>
<td>Df</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Asymp. Sig.</td>
<td>.000</td>
<td>.000</td>
</tr>
</tbody>
</table>

**Interpretation:**
Since the chi square values of occupation of respondent (58.64) and levels of creativity (85.04) exceed the critical values (11.07 and 7.82 respectively at 0.05 level of significance & 15.09 and 11.34 at 0.01 level of significance) at 5 and 3 degrees of freedom respectively, the null hypothesis is rejected which states that Creativity in individuals does not depend upon the occupation one is in. Thus it is inferred that the occupation of Individuals have association with their level of creativity.

**H04: Income level of individuals and their creativity are not related.**
To test the hypothesis, income level is correlated with levels of creativity score using Spearman’s ρ (rho) facilitated through SPSS.

**Table-4: Output of correlation between Income level of individuals & levels of creativity obtained through SPSS**

<table>
<thead>
<tr>
<th>Spearman’s rho</th>
<th>Income levels</th>
<th>levels of creativity score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correlation Coefficient</td>
<td>1.000</td>
<td>.061</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.</td>
<td>.548</td>
</tr>
<tr>
<td>N</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Correlation Coefficient</td>
<td>.061</td>
<td>1.000</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.548</td>
<td>.</td>
</tr>
<tr>
<td>N</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>
Interpretation:
Since the correlation is found to be 0.061 (close to zero), correlation is too low to be meaningful, and is not significant at 0.05 level, hence the null hypothesis H4 is accepted i.e. Income level of individuals and their creativity are not related.

DISCUSSIONS
The results from the present study support the concept of creativity as envisaged by the European Commission (1998) that it is an ability which can be learned or acquired through practice. Creativity is being assumed as a learned ability on the basis of the following results obtained from the hypotheses testing:
Age does not impact Individual level of creativity. This finding from the present study coincides with the study of Abra J. (1982) which states that creativity does increase or decrease with age, rather it manifests itself in a different form at different age levels & contradicts the findings of Chi Hang Wu et al (2005) which concludes that creativity increases as age of an individual increases. Thus the results from the present study support the belief that creativity is present in everyone and it can be amplified through practice at any age.
Sex differences have no impact on creativity. This conclusion helps the researcher in achieving clarity on a controversial issue since the results from the studies by Littlejohn (1967); Stringer (1967); Hall & MacKinnon (1969); Urbina et al (1970); Barron (1972); Domino (1974); Harrington & Anderson (1979) brought into light that sex related differences in some cases had positive and in some cases negative relation to creativity. Thus it is manifested through this study that sex related differentiation which is evident in a male dominated society like ours must not apply in case of creativity and any false belief regarding creativity and gender must be shed.
Income-level of creativity does not impact individual level of creativity. Thus creativity can be exhibited by people with high as well as low income group and is no restricted to a specific income group. Thus the findings of the present study contradicts kaltounis’ study on Race, socioeconomic status and creativity (1974) which confirmed Rogers' statement that "disadvantaged children were slightly but not significantly more original," and is find in line with Ross' (1963) finding of no impact of socio-economic status on any of the measures of creative thinking.
While the above three demographic variables did not impact individual level of creativity an interesting finding is reached at in case of occupational differences and individual level of creativity. It was found that occupational differences had an association with Individual level of creativity thus indicating that the occupation one chooses is a manifestation of an individual’s level of creativity. It can also be inferred that the occupation one is in can demand from an individual to be more creative.

RECOMMENDATIONS
Since creativity is a learned ability and is not associated with Age and exhibits itself in different forms at different ages, it is suggested that different forms of creativity at different ages be recognized and accordingly individuals are engaged/engage themselves in activities which sharpen their creative abilities consistent with their age.
Since sex differences do not impact individual level of creativity, discrimination on the basis of gender should not be done at the time of allocation of tasks especially at the workplace.
Since occupation one is in has an association with individual level of creativity it is suggested that individuals must undergo creativity tests and career counseling if they wish to enter a job whose demand on creativity matches or is near to their own level of creativity. As an alternative, individuals must understand the field one is in or wish to undertake, understand its demand on creativity and in order to achieve that level work upon their own creative abilities.
Sometimes it may be found that individual’s possess more creativity than what their work generally demands, in that case individuals must employ their creativity to innovate more and more within the ambit of given responsibilities and find more creative and time and cost-effective solutions to a given problem. They can also indulge in some part-time job or activities that help them channelize their creativity in a constructive way.
Creativity is a learned ability which can be acquired by any individual through practice. What is important in this era of competitiveness and innovation is to enhance one’s creativity through practice and acquire and engage into different forms of creativity to realize one’s full creative potential. Different occupations demand different levels of creativity of which individuals must be aware of and choose their occupations wisely so that it helps them in acquiring or enhancing their level of creativity and fulfilling their creative needs if it exists.

REFERENCES