APPENDIX D

FORMULAE USED

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(A) Mean

$$M = \frac{\sum X}{N}$$

M = Mean

$\sum X$ = Sum of the Scores

N = Number of the respondents

The following 't' formulae was used to find out the significant difference between two groups of respondents.

(B)   't' for big sample (more than 30)

$$\sigma D = \sigma$$

$$= \frac{(m_1 - m_2)}{\sqrt{\sigma_{m_1}^2 + \sigma_{m_2}^2}}$$

$$= \sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}$$

σ_D = Standard Error of the two samples.

σ_1 and σ_2 are the SD's of the two samples.

N_1 and N_2 are the numbers of respondents of the two samples.

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$$CR = \frac{D}{\sigma D}$$

CR = Critical Ratio

D = Difference of two means

σD = Standard Error

(C) 't' for small sample (less than 30)

$$SE = \sigma_D = SD \sqrt{\frac{M_1 + M_2}{N_1 N_2}}$$

Where , $\sqrt{\dfrac{\sum(X_1 - M_1)^2 + \sum(X_2 - M_2)^2}{N_1 + N_2 - 2}}$

$$t = \frac{D}{SE}$$

D = Difference of two means

SE = Standard Error

(D) 't' ratio in Percentages

$$\sigma_{P_1 - P_2} = \sqrt{\sigma_{P_1}^2 + \sigma_{P_2}^2}$$

$$SE = \sqrt{PQ \frac{1}{N_1} + \frac{1}{N_2}}$$

Where,
$$P = \frac{N_1 P_1 + N_2 P_2}{N_1 + N_2}$$

$$Q = (1 - P)$$

$$CR = \frac{D}{SE}$$

$$= \frac{P_1 - P_2}{\sigma_{P_1 - P_2}}$$

$P_1 - P_2 =$ Difference of two percentages

$SE =$ Standard Error

(E) Correlation from rank differences

$$= 1 - \frac{6 \times \Sigma D^2}{N(N^2 - 1)}$$

$\rho =$ Coefficient of correlation from rank differences

$\Sigma D^2 =$ Sum of the squares of differences in rank

$N =$ Number of pairs

(Reference : Garret H.E., Statistics in Psychology and Education. Vakils, Feffer and Simons Pvt. Ltd., Bombay, 1966, 213-215, 222-223, 371-372