CHAPTER 4

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SUMMARY OF THE FINDINGS

The present investigation was undertaken to investigate the problem of scientific productivity among college teachers. In recent years there has been a steadily increasing realisation of the need for college teachers to involve themselves in creative and productive activities related to the subject or field of study. This realisation has come about for two reasons. Firstly, this would contribute to the professional and psychological growth of the teacher himself. Secondly, this would help create an overall culture of creativity and productivity in our colleges. Scientific productivity for this purpose was defined in terms of the actual number of research publication by a teacher and also in terms of his participation in seminars, conferences and other scientifically productive activities.

A suitable scale of scores was evolved to measure the scientific productivity of college teachers in terms of the above definition.

A large group of college teachers was contacted and information was obtained from them regarding their scientific productivity in terms of publications and participation in research activities. A total of 160 college teachers furnished the required information. These teachers were
drawn from medical, engineering, science and arts faculties of various colleges in Madras city.

An evaluation of productive activities showed that 97 of them received the score of zero thereby indicating that they have not been productive at all. The other 63 indicated varying degrees of productivity. In view of practical difficulties no attempt was made to make a finer classification of the 63 subjects. These 160 college teachers were therefore classified into two groups - productive and non-productive for the purpose of the present study. The 63 subjects who gave evidence of concrete research activities were grouped as productive and the remaining 97 as non-productive.

HYPOTHESES

As the main objective of the investigation was to study the relationship of certain personal and psychological factors to scientific productivity, it was decided, to achieve this by testing the correctness of certain hypotheses postulating differences between the productive and non-productive groups on certain specific variables. After considerable deliberation and also a careful study of available research literature the following hypotheses were formulated.

a) The productive and non-productive groups of college teachers differ significantly in their attitudes towards their profession.
h) The productive and non-productive groups differ significantly in their perceptions of organisational characteristics.

c) The productive and non-productive groups differ in their motivational/need patterns particularly with reference to the following needs:

- achievement
- order
- autonomy
- affiliation
- dominance
- change
- endurance
- aggression
- level of anxiety.

d) These characteristics interact with each other and distinct clusters would emerge differentiating between the productive group and non-productive group.

e) In addition to differences between the productive and non-productive groups as such, differences can emerge among the different categories of teachers like medical, engineering, science, humanities etc.

The above hypotheses were attempted to be tested on the basis of data collected from the sample of 160 subjects.

The variables involved in the above hypotheses have been defined and explained in the body of the thesis.

**TOOLS FOR MEASUREMENT OF VARIABLES**

The investigation necessitated the identification of valid and reliable tools for measuring the different variables.
The major variable of scientific productivity was scored on the basis of a scale of weighted scoring as already mentioned. The other variables involved in the study were:

a) Attitude to profession
b) Perceived organisational characteristics
c) Need pattern
d) Level of anxiety

The tools employed for measuring the above variables were as follows:

a) Attitude to profession

A number of readily available tools for measuring this variable were examined and it was found that they were all unsatisfactory. In view of this a scale was developed following the Thurstone technique of equal appearing intervals. The scale was developed as per standard procedures. The final form had 38 items, reliability as tested by a pilot study was found to be satisfactory.

b) Perceived organisational characteristics

A scale developed in the Indian context and for use with Indian college teachers by Jayalakshmi Indiresan was found to be suitable for this purpose. This scale had 20 items measuring 4 areas of organisational climate. The scale known as organisational atmosphere scale was developed in 1974 and the author has reported satisfactory results.
c) Need patterns

The need patterns was measured by the Edwards Personal Preference Schedule (E.P.P.S.). This is a very well known scale and has been in wide use. The scale has been used extensively both for research and for counselling purposes. It was felt that this scale should be utilised in the present investigation.

d) Measurement of anxiety level

A number of tools were available for measuring anxiety. After careful examination of these, the choice fell on IPAT self analysis form - Cattell (1963). This tool was developed by Cattell after years of research and it was felt that this in its original form would be adequate for the purpose of the present investigation.

e) Measurement of scientific productivity

Scientific productivity as already mentioned was assessed on the basis of a biographical information blank for eliciting the required information. The data available from this was scored as per a predetermined scale. The subjects were classified into two categories - productive and non-productive on the basis of these scores.

All the above tools were tried out in a pilot study on 30 college teachers. The pilot study was undertaken to test the usefulness of the above tools, the ability of the
subjects to respond to them, the time involved and other details. The findings of the pilot study showed that with certain minor changes all the tools were satisfactory. In the light of this, the tools were administered individually on the 160 subjects, and the data was scored and analysed as per the scoring schemes meant for each tool.

ANALYSIS OF THE DATA

The data which was scored was then subjected to statistical analysis to find out whether the hypothesis formulated was confirmed or rejected. The statistical measures included means, standard deviation, product moment coefficients of correlation, multiple regression coefficients and cluster analysis. 'F' test and 't' test were employed to test the significance of the differences between the two groups and also among the different subject groups - medical, engineering, science and arts.

The results of the statistical analysis have been presented and interpreted on the basis of analysis and interpretation. The following findings were found to emerge.

THE MAJOR FINDINGS

1. The most significant finding was that in general the level of scientific productivity of the college teachers appeared to be rather low. In fact, 97 out of the 160 subjects
drew a blank. This appears to be a rather gloomy picture and calls for serious study and remedial action.

2. The productive and non-productive groups failed to show any significant difference on variables like professional attitudes and perceived organizational characteristics. This is surprising in view of the large mass of evidence from researches in the industrial context which has shown the importance of professional attitudes and organizational characteristics. This finding may be explained by suggesting that scientific productivity is largely a result of personal and self-motivated efforts unlike work output in an industrial context. As an alternative it can also be suggested that our college teachers are totally insulated and insensitive and function as individuals rather than as members of an organization.

3. A comparison of the two groups, productive and non-productive, on manifest needs brought out a significant difference only in the case of need achievement. The productive group exhibited a significantly higher need achievement than the non-productive. This finding is very much in line with the large majority of researches on achievement motivation.

4. The productive and non-productive groups failed to show any significant difference on the level of anxiety.
5. Multiple regression coefficients which were worked out to test the significance of the combined operation of the above variables showed a very significant relationship with scientific productivity. This indicated that while need achievement was the only differentiating independent factor, the other variables in combination with need achievement appeared to be significantly related to scientific productivity.

6. Cluster analysis however showed that significant multiple regression coefficients for the four groups derived from different clusters of factors. To some extent this is a partial confirmation of our hypothesis postulating differences among the different subject group.

Overall the study has failed to provide substantial confirmation of the hypothesis regarding differences between productive and non-productive college teachers on various psychological factors. The second major hypothesis involving differences among the four groups medical, engineering, science and arts also found partial confirmation of cluster analysis.

While the findings have by and large led to a rejection of our hypothesis, nevertheless the study appears to suggest the following:
a) The general level of scientific productivity among college teachers is low. College teachers appear to fall into two categories productive and non-productive. This situation calls for efforts with selection, training and motivation.

b) A significant factor contributing to productivity appears to be need achievement. This suggests that efforts should be made to raise the level of achievement motivation of college teachers through proper training programmes and experiences.

c) Organizational and attitudinal factors appear to contribute very little to the productivity of college teachers. This situation should be studied carefully and efforts should be made to develop proper professional attitudes and suitable organizational climate. Organizational resources should be properly utilised for promoting productivity through proper restructuring of organizations, and organizational development programmes.

The above findings are presented purely as tentative for the simple reason that the present study was exploratory in nature and beset with many difficulties both conceptual and practical. It is therefore felt that these findings should be further tested by future investigations on different samples like scientists in research laboratories, scientists in
industrial laboratories and scientists in defence laboratories and other situations. It is also suggested that a more sensitive procedure of assessing productivity should be evolved and developed into a standard measure capable of application in a variety of situations. It is also suggested that a similar study be undertaken comparing scientifically productive institutions and scientifically non-productive institutions. Such an institutional comparison may help to bring out the role of organizational factors more clearly.

Further, it may also be worthwhile to study and measure the overall atmosphere and culture of productivity in our academic institutions. The present investigation might not have brought out anything startling but it has perhaps at least helped to suggest the above lines of future study and research.