FACTORS RELATED TO PROFESSIONAL PRODUCTIVITY : A STUDY OF SCIENTISTS AND ENGINEERS IN INDIAN INSTITUTES OF TECHNOLOGY

by

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CERTIFICATE

This is to certify that the thesis entitled "Factors Related to Professional Productivity: A study of scientists and engineers in Indian Institutes of Technology" being submitted by Mrs. Sabita Karunes (Banerjee) to the Indian Institute of Technology, Delhi for the award of the degree of Doctor of Philosophy, is a record of bonafide research work carried out by her.

Sabita Karunes has worked under my supervision and guidance and has fulfilled the requirements for the submission of this thesis, which to my knowledge, has reached the requisite standard.

The results contained in this thesis have not been submitted in part or in full, to any other university or institute for the award of any degree or diploma.

Purnima Mathur

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Supervisor

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ABSTRACT

The conditions under which the scientists and engineers perform their best, is a matter of great importance to the group of scientific organizations. Many studies have been made to identify such conditions by examining the relationship between scientists' performance and the factors related to motivation, job-satisfaction, organizational structure, and individual background. Most of these studies were, however, carried out in developed countries, where the organizational set ups and individual's attitude to work are somewhat different than those prevalent in developing countries like, India, because of socio-cultural and economic differences. The findings of these studies, therefore, may not be much useful to the managements of Indian scientific organizations. In India, very few systematic studies have been made in this area.

The present investigation is concerned with the professional productivity of 213 scientists and 336 engineers drawn from Indian Institutes of Technology. These institutes are seats of higher learning in science and technology and are involved in a variety of activities, such as teaching, research, industrial services, and technological development programmes. The investigation attempts to explore the relationships between the performance of scientists

(meaning both scientists and engineers) and a set of factors which include scientists' age, position in the hierarchy of organization, financial status, scholastic achievement, motivation, job satisfaction, dedication, communication, freedom, and diversity. The hypotheses, which are tested propose a definite relationship between each of these factors and performance. Three measures of performance have been considered in the study namely, publication productivity, teaching productivity, and productivity in industrial services.

The analysis of the data showed that:

i) The most productive age of scientists is around mid forties.

ii) Scientists more productive in teaching and research are self reliant, involved, and deep in their approach to work.

iii) More productive scientists in research have relatively strong desire for self-actualization.

iv) Job satisfaction is generally unrelated to performance.

v) Scientists more productive in industrial services are status oriented.

vi) Restricted freedom with visibility of consequences is most conducive to scientists' performance.

vii) Informal communications amongst scientists are helpful to their performance.

viii) Diversity in academic field, as well as in function, is helpful to scientists' performance.

On the basis of the results obtained, recommendations for further research are outlined.

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