Computational study to determine the influence of research on enhancing API

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2022 International Interdisciplinary Conference on Mathematics, Engineering and Science (MESIICON) | 978-1-6654-7072-8/22/$31.00 ©2022 IEEE | DOI: 10.1109/MESIICON55227.2022.10093607

***Abstract*— Faculty members at universities and institutes utilize the Academic Performance Indicator (API) of the University Grants Commission (UGC) to determine how to enhance their careers while remaining employed. Three main factors make up the API score: a) study actions connected to teaching, learning, and assessing; b) activities related to professional development, both within and outside the institute; and c) research and academic output. To determine each category's API score, we consider its unique collection of attributes and related data. In each faculty hierarchy, a faculty member's aggregate API score decides whether or not they advance from a lower level to a higher one. Researchers in this study analyzes the connections between API and the three types of data they find. Thirty samples were obtained from various sites to explore this through OLS regression analysis. Researchers observed a clear correlation between r values of 0.7338 and the first category. Further, r = 0.4231 suggests a moderate direct connection between the elements in category 2. The category three correlation value is 0.3756, indicating a weak direct link. The study found that faculty members in the education sector who seek to enhance their API scores must associate more with research-related activities.**

Keywords*— *Academic Performance Indicator (API), Faculty hierarchies, OLS regression analysis, Research activities, University Grants Commission (UGC)

I. INTRODUCTION

The higher educational institutes are the incubation centers of human beings for the overall development and prosperity of a nation of which the faculty members are considered the backbones. They are nerds in every meaning of the word. They are above mediocrity in society and are actively engaged in growing and generating the most desirable citizens for a country[1]. Therefore the progression and development in their career should not be obliterated. The University Grants Commission (UGC), the apex body regulating the affairs of higher educational institutes/ universities in India, has therefore come out with a Career Advancement Scheme (CAS) wherein the Academic Performance Indicators (APIs) on a year-on-year basis shall be the guiding tool in deciding the career progression of the faculties of these institutes[2]. The purpose of this score is to evaluate the academic and research activities of faculty members at various ranks within an institution, including Assistant Professors, Associate Professors, and Professors. For instance, any institute may have all three positions: Assistant Professors, Associate Professors, and Professors. For each position, the individual's level of scholarly work and research accomplishments is evaluated. Here the UGC has devised the format for calculating the API scores in three categories such as a) Teaching, Learning, and Evaluation related activities, b) Professional Development- Co and Extra Curricular activities, and c) Research and Academic Contribution related activities.

Each category has several other attributes and metrics for determining API scores. To be promoted to the next higher level, a faculty member needs to attain a specific minimum prescribed aggregate API score. Suppose a connection between API score and data found from three categories is established using some Data Science approaches. In that case, it might pave the way for the faculty members aspiring for career advancements up to the highest order paying heed to specific crucial attributes under them and acting accordingly. The manual calculation of the API scores quite often posed as a gigantic task owing to several attributes with varying matrices requiring tremendous human efforts to comprehend statistically[3]. The present level of research has led to the incorporation of machine learning technologies, data science, image processing, and the like[4][5][6][7].

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