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Performance Based Incentive for Research Publications- A Best Practice

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Abstract: National Institutional Ranking Framework (NIRF) has been developed by Ministry of Human Resource and Development (MHRD), Govt. of India. The NIRF has been drafted to provide an Indian context to educational aspiration and needs for two categories of institutions viz category 'A' mainly research and category 'B' mainly teaching. The NIRF provides for ranking of institutions under five broad generic parameters namely: i) Teaching, Learning and Resources; ii) Research, Professional Practice and Collaborative Performance; iii) Graduation Outcomes; iv) Outreach and inclusively and v) Perception.

The importance of quality publications is highlighted in Research Publication metrics, which forms an important component of Research, Professional Practice and collaboration performance parameter. In Outcome Based Education, every faculty is required to contribute towards Research Publications. The institutions need to motivate the faculty to understand the importance of Research Publications in the context of National Institutional Ranking.

Towards this goal, we have developed a methodology called "Performance Based Incentive for Research Publications". The incentive provides financial benefits to faculty members an amount equal to 15% of their Basic Pay during four months viz. Nov/Dec and May/June of the current academic year. The four months are the semester break months. The Performance Based Incentive is linked to both the quality and number of publications. The quality of publications is in relation to publications indexed in Scopus, Web of Science and Google scholar. The publications indexed in Scopus get maximum benefits of 15% of basic pay. The benefit gets decreased for publications indexed in Web of Sciences and Google Scholar in that order.

The application of Performance Based Incentive at author's college has resulted in increase in the number of publications which has a bearing on getting better score in the National Institutional Ranking.

Keywords: India Rankings 2016, NIRF, Outcome Based Education, Research Publications Metrics.

1. Introduction

National Institutional Ranking Framework (NIRF) has been developed by Ministry of Human Resource and Development (MHRD), Govt. of India. The NIRF [1] was launched in September 2015 and institutions were asked to submit online applications by

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December 2015 for the First National Ranking [2]. A total of 1438 Engineering Institutions submitted the online applications for Ranking. The Ranking list called India Ranking 2016 was published in April 2016 showing the top 100 Engineering Institutions in India.

A. Ranking Parameters

The NIRF provides for ranking of Institutions under five broad generic parameters which are explained in succeeding paragraphs.

1) Teaching, Learning and Resources (TLR): These parameters are related to faculty student ratio, faculty qualification and experience, library and laboratory facilities etc.

2) Research, Professional Practice and Collaborative Performance (RPC): This parameter forms the ultimate test of the effectiveness of research activities which is assessed by publications, citation, and IPR metrics.

3) Graduation Outcomes (GO): This parameter is about student outcomes, assessed based on Results, Placements, higher education and salary packages of placed students.

4)Outreach and Inclusivity (OI): The Ranking framework lays special emphasis on representation of Women and Socially Challenged Persons in student and/or faculty populations, and also on outreach activities of the institution.

Table 1. List of Ranked Institutions (a sample)

S. No.	Name of the Institutions	Overall Rank
1	IIT Madras	1
2	VIT University, Vellore	13
3	PSG College of Technology, Coimbatore	24
4	RV College of Engineering, Bengaluru	35
5	Institute of Technology, Nirma, Ahmedabad	45
6	Koneru Lakhmaiah Education Foundation, Guntur	59
7	CBIT, Hyderabad	71
8	SRR Engineering College, Bhimavaram	73
9	VIGNAN Foundation, Guntur	88
10	University Institute of Chemical Technology, Chandigarh	100

5) Perception: The ranking methodologies give a significant importance to the perception of the institution by its Stakeholders. This is accomplished through stakeholder survey.

B. Research Publications

Research publications form an important component of Research, Professional practice and Collaborative Performance (RPC) parameter. The RPC carries 100 marks with an weightage of 0.30/0.20 for category 'A'/'B' institutions out of total marks of 500 stipulated for five parameters. The NIRF has referred the data bases of Elsevier (Scopus), Thomson Reuters (Web of Science), Google Scholar and Indian Citation Index for the calculation of Research Publications metrics.

This paper discusses "Performance Based Incentive for Research Publications" which has a bearing on getting better scores in National Intuitional Rankings.

2. National Institutional Ranking

The National Institutional Ranking was based on the information and data provided by the institutions. The scores obtained by the institutions in the five parameters viz TLR (100), RPC (100), GO (100), OI (100) and Perception (100) were averaged taking in to account their respective weightages and assigned Rankings for the top hundred institutions. A sample of ten institutions taken from the list of hundred institutions [3] is shown in Table 1.

3. Research Publications Metrics

The Research Publications (PU) metrics carries 30 marks. The PU metrics is calculated as shown below:

$PU = 30 \times P/F$

$P = 0.6 \times PS + 0.3WS + 0.1\ GS \quad (1)$

PS = No. of papers indexed in Scopus

WS = No. of Papers Indexed in Web of Sciences

GS = No. of Papers Indexed in Google Scholar

F = No. of faculty in the institution

4. Target for research publications.

Every faculty member in the institution is required to contribute towards quality Research Publications. The order of priority for Research Publications should be 1) Indexed in Scopus, 2) Indexed in Web of Sciences and 3) Indexed in Google Scholar. The institutions need to fix the number of publications in priority 1, priority 2 and priority 3 for each category of faculty in the beginning of the academic year. The marks likely to be scored in Research Publications metrics can be estimated based on the number of faculty in each category and the number of publications by each one of them in priority 1, priority 2 and priority 3.

5. Performance Based Incentive for Research Publications

We have studied the existing incentive schemes. We have observed that these schemes provide one time fix incentive for publications in reputed journals. We also observed that these schemes have not given the desired result in terms of both quality and the number of publications.

To improve the number of quality publications, we have developed a methodology called "Performance Based Incentive (PBI) for Research Publications ". The incentive provides financial benefits to faculty an amount equal to 15% of their Basic Pay during four months viz. Nov/Dec and May/June of the current academic year. The four months are the semester break months and also called non-class work months. The semester break months may vary from university to university depending upon their academic calendar.

We choose the semester break months, because during this period the faculty does not have class work and they can devote their time towards research work/ publications. The PBI is linked to both the quality and number of publications. The quality of publication is in relation to publications indexed in Scopus, Web of Science and Google scholar. The papers presented in National and International conferences are also considered for incentive as long as these are published in journals indexed in Scopus/Web of Science/Google Scholar.

The publications indexed in Scopus get maximum benefits of 15% of basic pay, because of its weightage of 0.6 as per NIRF [1]. The benefits get decreased for publications indexed in Web of Sciences and Google Scholar in relation to their weightages of 0.3 and 0.1 respectively. The maximum benefit can be decided by the institutions who want to adopt this methodology.

We have divided the faculty in our college in to two categories viz. category I and category II based on their gross salary. Faculty drawing gross salary of Rs. 32400/

Table 2. Calculation of Incentive - I Semester

S. No	Scopus	Web of Sciences	Google Scholar	Incentive
1	2	0	0	15%
2	1	1	0	13.5%
3	1	0	1	10.5%
4	1	0	0	9%

Table 3. Calculation of Incentive - II Semester

S. No	Scopus	Web of Sciences	Google Scholar	Incentive
1	2	1	1	15%
2	2	1	0	13.5%
3	2	0	1	10.5%
4	2	0	0	9%

and more are classified as category I and those drawing gross salary of less than Rs. 32400/ are in category II.

We have divided the incentive in to two parts. The first part of the incentive is in Nov/Dec, which are semester break months at the end of I Semester. The second part of the incentive is in May/June, which are semester months at the end of II semester.

We have drawn four tables to illustrate the PBI. Tables 2 and 3 are for category I faculty showing their incentive for I and II semesters respectively. Tables 4 and 5 explain the incentive for category II faculty for I and II semesters respectively.

A.Category I (Rs. 32,400/- and above)

The incentive for category I faculty in I and II semester can be computed as per equation (2) & (3) respectively. The incentive is limited to a maximum of 15%

Incentive (I-Semester):

$= (n1*0.6 + n2*0.3 + n3*0.1)*15$ (2)

where n1, n2 and n3 are the publications in first semester indexed in Scopus, Web of Science and Google Scholar respectively.

The incentive for first semester is illustrated in Table 2.

Incentive (II-Semester):

$= (n1*0.3 + n2*0.3 + n3*0.1) * 15$(3)

where n1, n2 and n3 are the total number of publications both in first and second semester indexed in Scopus, Web of Science and Google Scholar respectively.The incentive for second semester is illustrated in Table 3.

B.Category II (Less than Rs.32,400/-)

The incentive for category II faculty in I and II semester can be computed as per equation (4) &(5) respectively. The incentive is limited to a maximum of 15%

Incentive (I-Semester):

$= (n1*0.7 + n2*0.3) * 15$ (4)

where n1 and n2 are the number of publications in first semester indexed in Web of Science and Google Scholar respectively.The incentive for first semester is illustrated in Table 4.

Table 4. Calculation of Incentive - I Semester

S. No	Scopus	Web of Sciences	Google Scholar	Incentive
1	0	1	1	15%
2	0	1	0	10.5%

Table 5. Calculation of Incentive - II Semester

S. No	Scopus	Web of Sciences	Google Scholar	Incentive
1	0	1	3	15%
2	0	1	2	14.25%
3	0	1	1	9.75%
4	0	1	0	5.25%

Incentives (II-Semester) :

$= (n1*0.35 + n2*0.3) * 15$(5)

where n1 and n2 are the total number of publications both in first and second semester indexed in Web of Science and Google Scholar respectively.The incentive for second semester is illustrated in table 5.

C.Analysis of incentive for category 1 faculty-Table 2 and Table 3.

Every faculty must have two publications per semester. Minimum one publication must be indexed in Scopus and second publication could be either indexed in Web of Sciences or in Google Scholar. Further, there must be at one publication as a first author. The total number of publications both in I and II semester should be four. The amount of incentive is shown in Table 2 and Table 3.

D.Analysis of Incentive for category 2 faculty- Table 4 and Table 5

Every faculty must publish two publications per semester. Minimum one publication should be indexed in Web of Sciences. Further, one publication must be as a first author. The total number of publications both in I and II semester should be four. The amount of incentive is shown in Table 4 and Table 5.

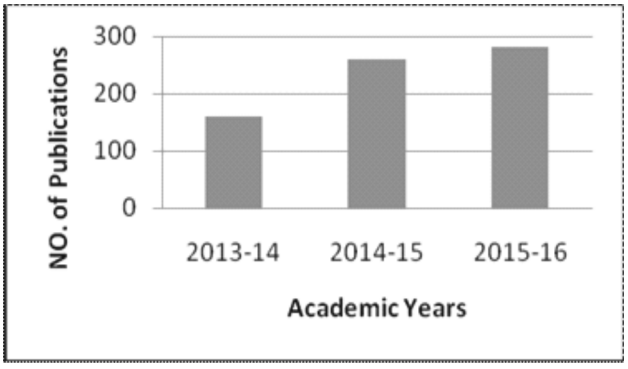

Fig. 1Improvement in Publications

6. Outcome of Performance Based Incentive

A. Improvement in publications

Substantial increase in paper publications in National and International journals as shown in figure 1.

B Improvement in Research Publication Metrics

There will an improvement in scoring better marks in research publication metrics if all the faculty in the institution publish no. of papers per year as specified in table 3 (Category-I) and Table 5 (Category-II). As an example, we had applied table 3 and 5 to our college and we got a score of 24 marks out of a maximum of 30 in Research Publication Metrics.

7. Conclusion

The Performance Based Incentive for Research has been developed to provide financial benefits to faculty based on their performance in publications. The performance is assessed in terms of both quality and number of publications. The implementation of PBI has encouraged the faculty and has resulted in a good number of publications both in quality and numbers. The Research Publications has a bearing in Research publications metrics, which in turn has an influence in getting better score in National Institutional Ranking Metrics. The PBI has proved effective in achieving its goal in our college. The PBI will be reviewed and revised based on feedback from the faculty members.

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