International Journal of Research in Teacher Education (IJRTE)
15(4): 107-125
ISSN: 1308-951X, Copyright © 2024
DOI: 10.29329/ijrte. 2024.1104.07

ORIGINAL ARTICLE

National Institutional Ranking Framework (NIRF) Parameters: A Comparative Study on Indian Educational Institutes

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Ethical Statement
"All ethical consideration has been taken care"

Funding Information
"No funding was received for the study."

Conflict of Interest
"No conflict of interest is present in the conduction or the reporting of this study."

ABSTRACT

Indian educational institute is governed by various accreditations and ranking agencies. One such body is National Institutional Ranking Framework NIRF) which gives the ranking of Indian educational institutes on five broad parameters. These parameters are further divided into sub parameters, which are measured by key indicators. This study aims to analyse all sub parameters and key indicators for different NIRF rankings. The paper will assist stakeholders in understanding the significance of each parameter and its sub parameters, as well as identifying the importance of key indicators that contribute to the ranking decision. The paper presents the review of all the parameters and sub parameters of NIRF in Indian Educational Institutes.

Keywords: Ranking, NIRF, TLR, RP, GO, OI, PR.

Received: 17/07/2023 **Accepted**: 11/07/2024

INTRODUCTION

In the current scenario, when various institutions and universities are offering a huge range of courses and programmes, it becomes a herculean task for a student to discriminate and decide which one to choose out of these organizations. Each one of these institutions claims that they are the best and offers best in class education, but is it the truth? How come all have become number one? The students and their parents look for the institutions that provide better career opportunities, research-oriented organizations government and non-government search for the institutions with better research facilities and consultancies for funding and grants, stakeholders and investors keep track of the growth institutions in terms of financial domains (Pietrucha, 2018). Therefore, to resolve this issue, there are various ranking and accreditation organizations which give rankings of different colleges, institutions, and universities across the world. Based upon the different quality parameters, these institutions are evaluated and ranked accordingly. There are various organizations in India and abroad which provide ranking of these institutions based upon different parameters based upon their respective criteria (M. J. Kumar, 2015). Some of the organizations are Times Higher Education (THE) ranking (Galleli et al., 2022), Education World India Private University Ranking (NK et al., 2018a), Quacquarelli Symonds (QS) World University Ranking(Katsumoto et al., 2022; Polyakov et al., 2022), Academic Ranking of World Universities (ARWU), also known as the Shanghai Ranking (Dehon et al., 2010; Fernández-Cano et al., 2018), National Institutional Ranking Framework (NIRF)(NK et al., 2018b; A. P. Singh et al., 2022), India Today University Ranking, National Board of Accreditation (NBA) etc (A. P. Singh et al., 2022).

The National Assessment and Accreditation Council (NAAC) is a government organisation in India that assesses and accredits higher education institutions. NAAC accreditation provides the benchmark by giving NAAC grade. It does not give the comparison between the institutions for example in India there may be number of institutes having NAAC A++ grade. But another body ranking named as National Institutional Ranking Framework (NIRF) provides the rankling of institution based on some parameters. NIRF is a methodology adopted by the Ministry of Education, Government of India, to rank institutions of higher education in India (A. K. Singh &Rawani, 2019). Though, the NAAC does not provide ranking of institutions but assure the quality of education based upon its own quantitative and qualitative parameters. The NIRF provides the ranking of institutions in India in different categories such as engineering, management, universities, dental, etc. based on the five parameters of NIRF, named as Teaching Learning and Resources (TLR), Research and Professional Practices (RP), Graduation Outcome (GO), Outreach and Inclusivity (OI) and Perception (PR) (Mondal et al., 2021; A. K. Singh &Rawani, 2022). The parameters for all the category of institutions are same but the sub parameters and its key indicators vary slightly for different category of institution. Therefore understanding the importance weight of each sub parameter and its key indicator is very important. Therefore, this study has been planned to compare the importance weight of different sub parameters, and its key indicators in detail. In this research article, detailed study is presented on each key parameter of NIRF for ranking of institutions. The article describes the five broad parameters of NIRF methodology and their different weightings for various categories of institutions. The article focuses on different weightings of sub-parameters and discusses in detail to fine tune the academic process so that more marks can be achieved in NIRF by targeting each sub-parameters that consequently leads to assure the quality of education in higher education institutions in India.

The article is organized as follows. Section 2 elaborates the related works in the field of ranking parameters and their analysis. Section 3 presents the comparative analysis of NIRF key parameters along with the detailed analysis of corresponding sub-key parameters. In section 4, the issues and challenges are discussed with respect to different

parameters. Section 5 concludes the article.

COMPARATIVE ANALYSIS

Comparison on NIRF key Parameters

Based on the review of the various manuals of NIRF Ranking, it is found that the NIRF core committee has given equal importance (30%) on teaching learning and Resources for Dental, Medical, Pharmacy, Management, Engineering and Overall Category. However, for Law, Architecture and College the weight assigned is 40% instead of 30%. It means the NIRF core committee believes that in the case of Law, Architecture and College category the main motto of the institution is Teaching Learning and Resources. The detail comparison of weight of NIRF parameters for different category of institution is shown in figure1.

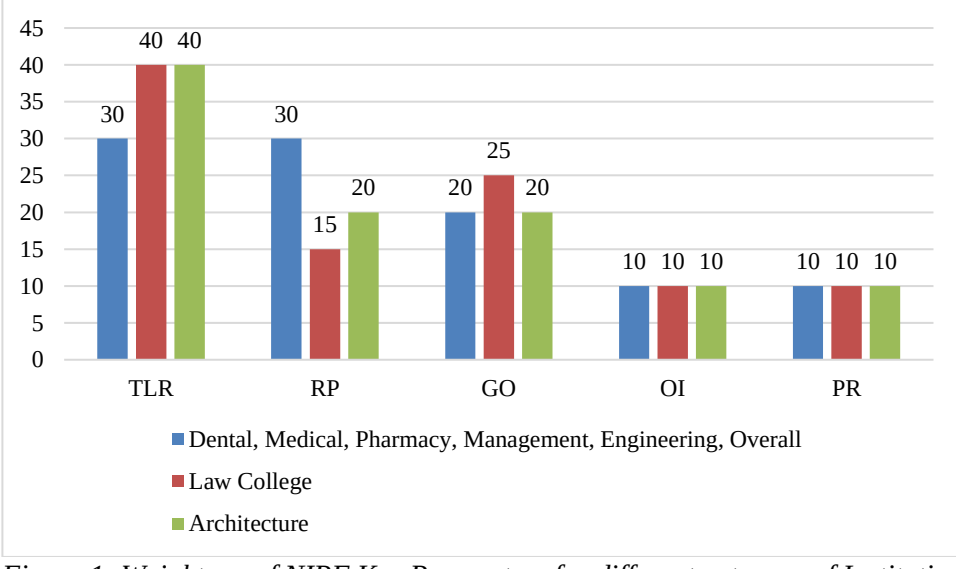

Figure 1: Weightage of NIRF Key Parameters for different category of Institution

Further, on Research and Professional Practices NIRF core committee has given 30% weight to Dental, Medical, Pharmacy, Management, Engineering and Overall Category. However, only 15% weightage to Law and College category and 20% weightage to Architecture category. It means the importance of research and professional practices are quite higher for Dental, Medical, Pharmacy, Management, and Engineering than Law College and Architecture.

On Graduation Outcome weightage is quite equal which is 20% for all categories instead of Law and college category (25%). Because the responsibility of Law and College category institutions are quite low on research and professional practices, so it is believed that the law and college category must be ranked based on the performance on graduation outcomes.

Further, on 'Outreach and Inclusivity' all the categories of ranking are given equal importance i.e. 10%. It indicates that this parameter is the fundamental need of the institute to maintain the equal opportunity to all categories of people including caste and gender-based categorization. Same case is also applicable for perception i.e this parameter is also assigned with 10% weightage to all category of NIRF Ranking.

The different weight for different category of institution on the same NIRF parameter is defined by the difference in sub parameters of the main parameter so a comparison of the sub parameter of NIRF main parameter is also done..

Comparison on Teaching Learning and Resources (TLR)

Teaching Learning and Resources' consist of five sub parameters: Student Strength (SS), Faculty Students Ratio (FSR), Faculty with PhD and Experience (FQE), Financial Resources and their Utilization (FRU) and Online Education (OE) (Subbarayalu& Ahmed Al Kuwaiti, 2019). However, the weightage of each sub parameter varies slightly for different categories of NIRF Ranking. The detailed weightage on each sub parameters for different category of NIRF Ranking is given in figure 2.

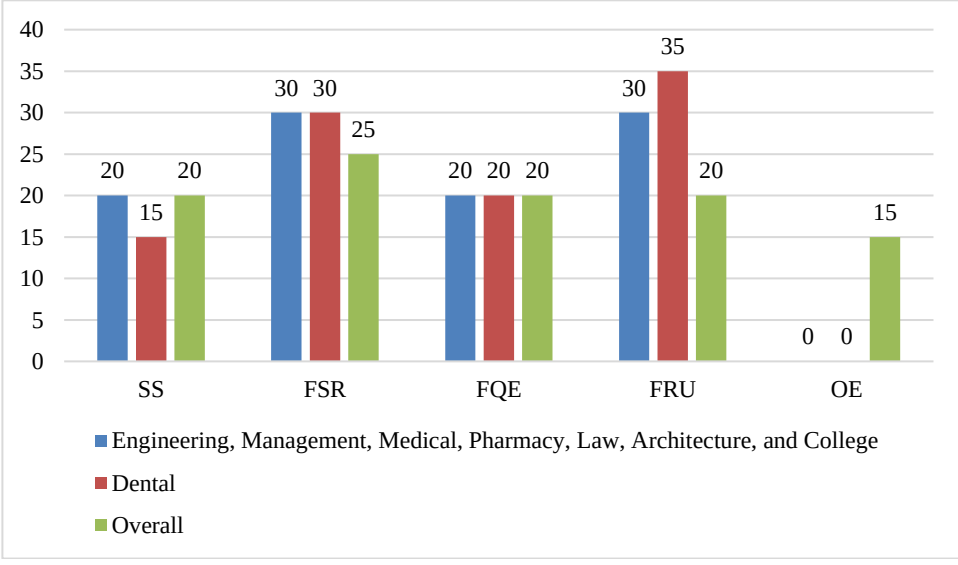

Figure 2: Comparison of TLR Sub Parameters for Different category of NIRF Ranking

Observation of the above bar chart shows that for Engineering, Management, Medical, Pharmacy, Law, Architecture, Overall and College category the weightage of students' strength is 20%, however for dental category the weightage on students strength is only 15%. It indicates that the student's strength has been given less importance for the dental category as compared to other categories of NIRF ranking. The above bar chart also indicates that this less important score is compensated by financial resources and their utilization for dental category ranking because the weightage on financial resources and its utilization is quite higher for dental category as compared to other categories of NIRF Ranking. Further, a detailed analysis has been done by reviewing the various categories of ranking manuals. In this analysis it has been found that the students' strength is a function of the total number of approved sanctioned intake and enrolment considering all UG and PG programs, and the total number of enrolled students in doctoral programs. Although all three parameters are considered for calculation of SS in all categories of NIRF Ranking, however, as per the weights of these key indicators the formula of student's strength can be divided into three categories which are given below.

- For Engineering, Management, Medical, Pharmacy, and Law category

$$SS = f(NT, NE) \times 15 + f(NP) \times 5 \quad (1)$$

- For Dental

$$SS = f(NT, NE) \times 10 + f(NP) \times 5 \quad (2)$$

- For Architecture, College

$$SS = f(NT, NE) \times 20 \quad (3)$$

Where,

NT: Total sanctioned approved intake in the institution considering all UG and PG programs.

NE: Total number of students enrolled in the institution considering all UG and PG Programs.

NP = Total number of students enrolled for the doctoral program till previous academic year.

Above equations clearly1), indicates that the NIRF core committee has assigned a multiplier of 15 to the function of intake and enrolment of UG and PG students for Engineering, Management, Medical, Pharmacy, and Law category ranking and a multiplier of 5 to the enrolment of doctoral students. However, in the case of the ranking of dental category the multiplier for UG and PG students' intake and enrolment is only 10 instead of 15. It has happened because the overall weight of student strength for the dental category is only 15 instead of 20. Further for architecture and college category the complete 20 is assigned to the Intake and Enrolment of UG and PG students. There are no any multipliers for Doctoral students; it indicates that NIRF Core committee does not consider doctoral students for architecture and college categories. This is one of the surprising observations, because the role of Architecture is nowadays not limited to UG and PG. They are also offering the Doctoral program and successfully guiding the students in the research and development process as well.

The second sub parameter of TLR is Faculty Student Ratio (FSR), which measures the number of full-time faculty against the number of sanctioned intake students including doctoral candidates. From figure 2 it can be clearly observed that the NIRF core committee has given 30% weightage to all categories of ranking except the overall category which has been given only 25% weightage on FSR..However in the Overall category a new sub parameter online education (OE) has been introduced which is not considered for other categories of ranking. So the less weightage on FSR for the overall category was compensated by the online education by assigning 15% weightage on this parameter. Detailed analysis of FSR indicates that NIRF core committee expects a FSR of 1:15 for all categories of NIRF Ranking, however for Law and College category the expected ratio is 1:20 to get maximum marks on FSR. If the ratio is less than 1/50 then the marks assigned in this sub parameter is set to be zero. Detailed formula for FSR on each category of NIRF Ranking is given below:

- For Engineering, Management, Medical, Pharmacy Dental and Architecture

$$FSR = 30 \times [15 \times (F/N)] \quad (4)$$

- For Law, College,

$$FSR = 30 \times [20 \times (F/N)] \quad (5)$$

- For Overall

$$FSR = 25 \times [15 \times (F/N)] \quad (6)$$

Where,

N =NT+ NP

F: Number of Faculty of last academic year.

NT: Total number of Sanctioned approved intake in UG and PG

NP: Total number of enrolled students in Doctoral program

The third sub parameter of TLR is Faculty with PhD and Experience (FQE) which measures the qualification of faculty members along with their experience. For Engineering, Management, Medical, Pharmacy, Architecture, Overall, Law, College category the FQE is a sum of two variables. One is the ratio of faculty members with doctoral degrees to the total number of faculty members (FQ), and another is their experiences (FE).The detailed formula for the calculation of FQ indicate that if an institute have more that 75% faculty having PhD or equivalent degree then that institute will get full marks on this parameter otherwise a proportionate score is assigned as per the ratio of faculty with PhD to the Total number of faulty. Another component of FQE is FE which considers the experience of faculty members in which experience of faculty members are divided into three categories, first experience up to 8 years, second experience between 8+ to 15 years and the third, is experience more than 15 years. In case of FE NIRF core committee has assigned a multiplier of 3 to first two categories i.e., Experience up to 8 years and experience between 8-15 years. However for experience more than 15 years the multiplier is 4. Which indicates that more weightage is given for the faculty having experience of more than 15 years, but an institute will get maximum marks if that institute maintains a ratio of 33.33% in each category of experience of faculty members. Exceeding the ratio on any of the categories of experience will lead to decrease in marks instead of increasing. Another observation of these formulas indicates that in the dental category of ranking the NIRF core committee has only considered faculty experiences including a multiplier of 6, 6 and 8 for each category of experience, not the qualifications which is really a very surprising observation. One more surprising observation is that in the calculation of SS for dental category, the number of doctoral students enrolled in the institution play a very significant role but faculty having PhD or equivalent degree has not been considered here. Similarly for architecture SS does not consider the number of PhD students enrolled in the institution but they are bothered about the qualification, but it gives the component of faculty members with PhD or equivalent degree. The detail formula to calculate the FQE for each category of NIRF ranking is given below:

- For Engineering, Management, Medical, Pharmacy, Architecture, Overall, Law and College

FQE=FQ+FE (7)

FQ = 10 × (FRA/75) , FRA ≤ 75%;

FQ = 10, FRA> 75%.

FE = 3min (3F1, 1) + 3 min (3F2, 1) + 4 min (3F3, 1)

- For Dental,

FQE=FE (8)

FE = 6 min (3F1, 1) + 6 min (3F2, 1) + 8 min (3F3,1)

Rationale: Full marks for a ratio of 1:1:1

Where,

Here FRA is the percentage of Faculty with Ph.D. (or equivalent qualification) with respect to the total no. of faculty required or actual faculty whichever is higher, in the previous year.

F1=Fraction with Experience up to 8 years.

F2= Fraction with Experience between 8+ to 15 years.

F3=Fraction with Experience > 15 years.

The fourth sub parameter of the TLR is Financial Resources and their Utilization (FRU), which measures the total capital and operational expenditure utilised per student for the teaching and learning process in the last three years. Figure 2 clearly shows that on this sub parameter the NIRF core committee has assigned 20% weightage for overall category, 30% for Engineering, Management, Medical, Pharmacy, Law, Architecture, College categories, and 35% for dental category. However, for each category of NIRF ranking the FRU is bi furcate into capital expenditure and operational expenditure in which the weightage of operational expenditure is 3 times higher than the capital expenditure. So, all the institution should focus more on operational expenditure as compared to the capital expenditure.

- For Engineering, Management, Medical, Pharmacy, Architecture, Law, College

$$FRU = 7.5 \times f(BC) + 22.5 \times f(BO) \quad (9)$$

- For Dental

$$FRU = 8.75 \times f(BC) + 26.25 \times f(BO) \quad (10)$$

- For Overall

$$FRU = 5 \times f(BC) + 15 \times f(BO) \quad (11)$$

Where,

BC: Average Annual Capital Expenditure per student for the previous three years. (Excluding expenditure on construction of new buildings)

BO: Average Annual Operational (or Recurring) Expenditure per student for the previous three years. (Excluding maintenance of hostels and allied services)

The fifth Sub Parameter of TLR is Online Education (OE), which is only applicable to the overall category of NIRF Ranking

and has a weightage of 15%. On this sub parameter the NIRF judges most of the initiatives of online education like online completion of syllabus & exams and lecture on Swayam portal and some other initiatives to support the online education.

$$OE = f(OE)$$

Comparison on Research and Professional Practices (RP)

Research and Professional Practices (RP) consists of four sub parameters which are Number of Publications (PU), Quality of Publications (QP), Intellectual Property Rights (IPR) and Footprint of Projects and Professional Practices (FPPP)(Gupta et al., 2020; Nassa et al., 2021). The weightage on each sub parameter slightly varies for different categories of NIRF Ranking. The detailed weight on each sub parameter of RP for each category of NIRF Ranking is given in Figure 3.

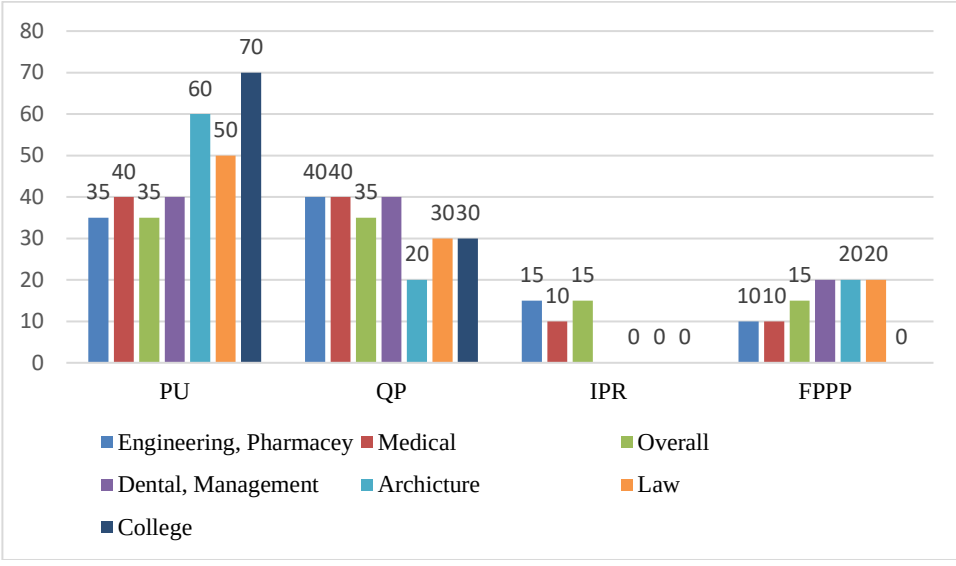

Figure 3: Comparison of RP Sub Parameters for Different category of NIRF Ranking

*A detailed analysis of the figure 3 shows that the engineering, pharmacy and overall category are assigned with 35% weight to the number of publications, which is lowest as compared to other categories of ranking. This least weight is compensated by other sub parameters of RP which are QP, IPR and FPP. Further, Medical Dental and Management categories are assigned with 40% weightage which is a little bit higher than the Engineering Pharmacy and Overall category. Moreover, Law architecture and college category are assigned with 50, 60 and 70% weightage on PU which is highest as compared to other categories of ranking because these categories are not being evaluated on IPR. So, the marks of IPR were given in PU itself. Further the numbers of publications are measured with the help of the number of research papers published in reputed journals with respect to the number of faculty members in the institution. The details formula for the score calculation on PU is given below:

For Engineering, Pharmacy, Overall

$$PU = 35 \times f(P/FRQ) \quad (12)$$

For Dental, Medical, Management

$$PU = 40 \times f(P/FRQ) \quad (13)$$

For Law

$$PU = 50 \times f(P/FRQ) \quad (14)$$

For Architecture

$$PU = 60 \times f(P/FRQ) \quad (15)$$

For College

$$PU = 70 \times f(P/FRQ) \quad (16)$$

Where,

P- Weighted number of publications as ascertained from suitable third-party sources.

FRQ-maximum of nominal number of faculty members as calculated based on a required FSR or the available faculty in the institution.

The second sub parameter of RP is quality of publication (QP), which is defined as the total citation with respect to total number of faculty members of last three years and the citation in top 25 percentile averaged over the previous three years. Here again based on the nature of the institutions the weight of on QP is different for different types of institutions. For Dental, Medical, Management, Engineering and Pharmacy the weight of QP in 40%, for over all its 35%, for Law and College its 30 and for architecture it is only 20%. The detail formulas to calculate the QP for each category of institutions are given below:

For Dental, Medical, Management, Engineering, Pharmacy,

$$QP = 20 \times f(CC/FRQ) + 20 \times f(TOP25P/P) \quad (17)$$

For Overall

$$QP = 20 \times f(CC/FRQ) + 15 \times f(TOP25P/P) \quad (18)$$

For Law, College

$$QP = 30 \times f(CC/P) \quad (19)$$

For Architecture

$$QP = 20 \times f(CC/P) \quad (20)$$

Where,

CC -Total Citation Count over the previous three years.

P is as computed for PU.

TOP25P- Number of citations in top 25 percentile averaged over the previous three years.

FRQ-the maximum of nominal number of faculty members as calculated based on a required FSR or the available faculty in the institution.

Above formula clearly indicates that for Dental, Medical, Management, Engineering, Pharmacy the total marks of equally divided in two categories i.e. citation and citation in top 25 percentile journals. Here the score assign to these two key indicator is 20 and 20 but in case of Overall category the weightage is different i.e 20 and 15 on citation and citations on top 25 percentile journals. Further, for law college and Architecture the complete weight of quality of publication is measured by the total citations only, here the weightage of citation in top 25 percentile journal is not assigned.

The third sup parameter of RP is the metric for Patents Published and Granted (IPR) which is defined as the summation of number of patents granted and published. The detail formula to calculate IPR is given below:

IPR = IPG + IPP

For Overall, Engineering, Pharmacy,

$$IPG = 10\times f(PG) \tag{21}$$

$$IPP = 5 \times f(PP) \tag{22}$$

For Medical,

$$IPG = 5\times f(PG) \tag{23}$$

$$IPP = 5 \times f(PP) \tag{24}$$

Where,

PG - number of patents granted over the previous three years.

PP: No. of patents published over the previous three years.

Above formula clearly indicates that for Overall, Engineering, and Pharmacy the total weight on IPR is 15 which is distributed in the ration of 2:1 between patent granted and patent published. Further for medical the weight on IPR is 10 which is distributed in the ratio of 1:1 between patent granted and published.

The forth sub parameter of RP is footprint of project and professional practices (FPPP). This sub parameter consists of different key parameters for different category of institutions.

For Dental category the FPPP is the summation of FPR and OPD which is further defined in terms of research funding and average OPD per day. The detail formula to calculate the FPPP is given below.

$$FPPP = FPR + OPD \tag{25}$$

$$FPR = 10 \times f(RF) \tag{26}$$

$$OPD = 10 \times f(\text{Average OPD per Day}) \tag{27}$$

Where,

RF is average annual research funding earnings (amount actually received in rupees) per faculty at institute level in previous three years

For Medical

$$FPPP = FPR + FBD \quad (28)$$

$$FPR = 5 \times f\,(RF) \quad (29)$$

$$FBD = 5 \times f\,(PBD) \quad (30)$$

Where,

PBD is the percentage of bed occupancy in a day.

For Pharmacy, Engineering

$$FPPP = FPR + FPC \quad (31)$$

$$FPR = 7.5 \times f\,(RF) \quad (32)$$

$$FPC = 2.5 \times f\,(CF) \quad (33)$$

Where,

CF is the average annual consultancy amount (amount actually received in rupees) per faculty at institute level in the previous three years.

For Architecture Law

$$FPPP = FPR + FPC \quad (34)$$

$$FPR = 10\times f(RF) \quad (35)$$

$$FPC = 10 \times f(CF) \quad (36)$$

For Management,

$$FPPP = FPR + FPC + EDP/MDP \quad (37)$$

$$FPR = 5\times f(RF) \quad (38)$$

$$FPC = 5\times f(CF) \quad (39)$$

$$EDP/MDP = 10\times f(EP) \quad (40)$$

Where,

EP = Average annual earnings per faculty from Executive Development Programs/Management Development Programs in the previous three years.

For Overall,

$$FPPP = FPR + FPC + EDP/MD \quad (41)$$

$$FPR = 5 \times f(RF) \quad (42)$$

$$FPC = 5 \times f(CF) \quad (43)$$

$$EDP/MDP = 5 \times f(EP) \quad (44)$$

Based on the different relationships for FPPP, the FPPP is divided into two parts; one is research project funding and another is professional practices. For professional practices, in the case of medical and dental categories, the percentage of bed occupancy and the number of OPD patients are measured respectively. However, for other categories the consultancy projects and development programs are considered. Overall, there is nice balance in measuring FPPP for different categories considering their different expertise.

Comparison on Graduation Outcome (GO)

The graduation outcome consists of six sub parameter which are University Examination, (GUE), placement & higher studies (GPH), median Salary (GMS), number of PhD students (GPHD), GPG, and GSS(A. Kumar et al., 2021; Nassa et al., 2021). Further all the sub parameters are divided into many key indicators.

The first sub parameter, the metric for University Examinations (GUE) is determined by as follows for different categories.

For Engineering, Pharmacy, Law

$$GUE = 15 \times \min [(Ng/80), 1] \quad (45)$$

For Dental, Architecture

$$GUE = 30 \times \min [(Ng/80), 1] \quad (46)$$

For Management

$$GUE = 20 \times \min [(Ng/80), 1] \quad (47)$$

For Overall

$$GUE = 60 \times \min [(Ng/80), 1] \quad (48)$$

For Collège

$$GUE = 40 \times \min [(Ng/80), 1] \quad (49)$$

For Medical

$$GUE = 25 \times \min [(Ng/80), 1] \quad (50)$$

Where,

Ng - Percentage of Students (as a fraction of the approved intake), averaged over the previous three years, passing the respective university examinations in stipulated time for the program in which enrolled.

It is expected that at least 80% of students should pass the respective university examination in stipulated time for the program in which enrolled. This also reflects in overall category by giving highest weightage as compared to other

categories.

The second parameter is the metric for Placement and Higher Studies (GPH). It is calculated as follows.

For Engineering, Management, Pharmacy, Law, College, Architecture

$$GPH = 40 \times (Np/100 + Nhs/100) \quad (51)$$

For Dental

$$GPH = 35 \times (Np/100 + Nhs/100) \quad (52)$$

For Medical

$$GPH = 25 \times (Np/100 + Nhs/100) \quad (53)$$

Where,

Np - Percentage of graduating students (in UG/ PG programs) placed in the previous three years.

Nhs - Percentage of graduating students (in UG/ PG programs) who have been selected for higher studies in the previous three years.

This sub parameter measures the percentage of students who have placed and also who have been selected for higher studies. However, the weightages are different for different categories. Recently, many of the graduates are stepping into the field of setting up their own business due to huge boost up from the government for entrepreneurship, innovation and incubation centres. The number of students working as entrepreneur may be included in this sub parameter.

The next sub parameter is known as metric for number ofPh.D Students Graduated (GPHD) which is defined as,

For Engineering, Pharmacy, Law

$$GPHD = 20 \times f(Nphd) \quad (54)$$

For Overall

$$GPHD = 40 \times f(Nphd) \quad (55)$$

Where,

Nphd = Average number of Ph.D students graduated (awarded Ph.D) over the previous three years.

However, in dental and medical categories the post graduated (GPG) or super specialty graduates (GSS) are considered due to nature of higher education. One of the reason may be that there are very few percentages of dental or medical graduates who pursue Ph.D. degree and contribute towards clinical research. Though, authors expect that some weightage should be given to Ph.D. graduates in these categories that would encourage institution for such courses. The

GPG and GSS is determined by,

The metric for Number of PG Students Graduated (GPG)

For Dental

$$GPG = 35 \times f(Ngpg) \quad (56)$$

For Medical

$$GPG = 30 \times f(Npg) \quad (57)$$

Where,

Npg = Average number of PG students (MD/MS/DNB) students graduated over the previous three years

The metric for Number of Super Specialty Students Graduated (GSS)

For Medical

$$GSS = 20 \times f(Nss)\ (medical) \quad (58)$$

Where,

Nss = Average number of Super Specialty (MCh/DM) students graduated over the previous three years.

The last sub parameter is the Median Salary (MS) for GO. Again except dental, medical and overall categories, in all other categories the MS is considered. While calculating MS, in the management category, it has given the highest weightage compared to others. The calculations are given by,

For Engineering, Pharmacy, Law

$$GMS = 25 \times f\ (MS) \quad (59)$$

For Architecture

$$GMS = 30 \times f(MS) \quad (60)$$

For Management

$$GMS = 40 \times f\ (MS) \quad (61)$$

For Collège

$$GMS = 20 \times f(MS) \quad (62)$$

Where,

MS = Median salary of graduates (in UG/PG program) in the previous three years from an institution.

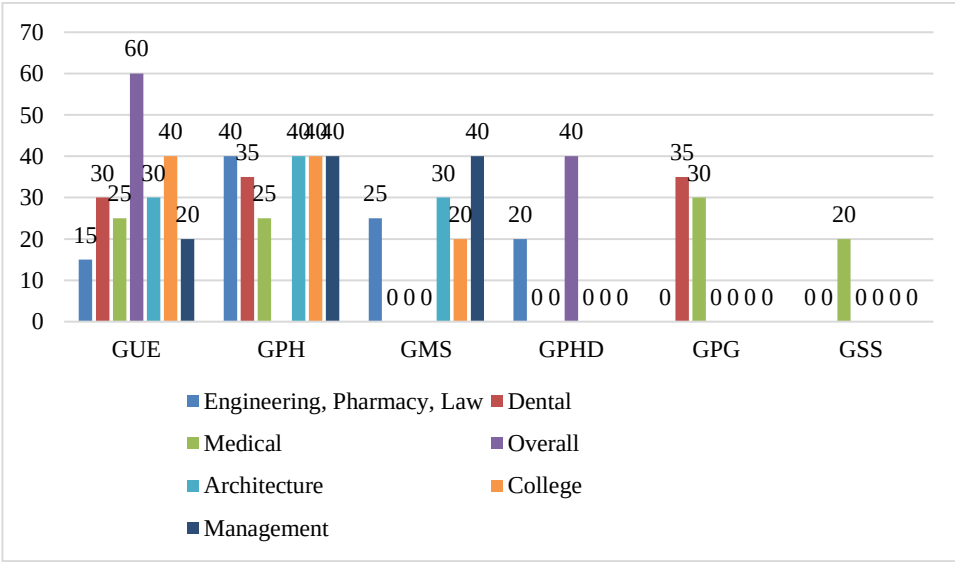

Figure 4: Comparison of GO Sub Parameters for Different category of NIRF Ranking

Comparison on Outreach and Inclusivity (OI)

The outreach and inclusivity (OI) comprise percentage of Students from Other States/ Countries (Region Diversity), percentage of Women (Women Diversity), economically and socially challenged students (ESCS) and facilities for physically challenged students (PCS).

The first sub parameter of OI is regional diversity (RD) which has two components, the first one is related with students from different states and another one is related with the students from different countries. However, the weightage of these components slightly varies for different categories of institutions. For Engineering, Medical, Pharmacy, Law, Architecture, College, Dental, overall. The weightage of state diversity has been assigned with 25% and the weightage of countries diversity has been assigned with 5% and the total weight of regional diversity is 30%. Further, for management the complete 30% weight is assigned to state diversity. The detail formula for regional diversity is given below:

For Engineering, Medical, Pharmacy, Law, Architecture, College, Dental, Overall

RD = 25 × fraction of total students enrolled from other states + 5 × fraction of students enrolled from other countries

For Management

RD = 30 × fraction of total students enrolled from other states (63)

The second sub parameter of OI is Women Diversity (WD) which is measured by the percentage of female faculty and female students. The formula for all the category of institutions is same which is given below. From this formula it is expected that if and intuition have 50% female students and 20% female faculty, then that institution will score full marks on WD.

For Engineering, Medical, Pharmacy, Law, Architecture, College, Dental, Overall, Management

$$WD = 15 \times (NWS/50) + 15 \times (NWF/20) \quad (64)$$

Where,

NWS - percentage of Women students.

NWF - percentage of Women Faculty including women members in senior

administrative positions, such as Heads of Departments, Deans or Institute Heads.

Expectation: 50% women students and 20% women faculty

The third sub parameter of OI is Economically and Socially Challenge Students(ESCS). For all the categories of institution the weight on ESCS is 20 % and it is the function of percentage of students being provided full tuition fee reimbursement by the institution to pursue their degree programs. A detail formula to calculate the score on ESCS is given below. It is clear from this formula that it is relative so providing more number of students a full tuition fee reimbursement by the same institution will result in more marks on this sub parameter.

For Engineering, Medical, Pharmacy, Law, Architecture, College, Dental, Overall, Management

$$ESCS = 20 \times f(Nesc) \quad (65)$$

Where,

Nesc - percentage of students being provided full tuition fee reimbursement by the institution to pursue their degree programs.

The fourth sub parameter of OI is Facilities for Physically Challenged Students (PCS), For all the category of institutions the weightage is 20%.

Engineering, Medical, Pharmacy, Law, Architecture, College, Dental, Overall, Management

PCS = 20 marks, if the Institute provides full facilities for physically challenged students, as outlined. Else, in proportion to facilities.

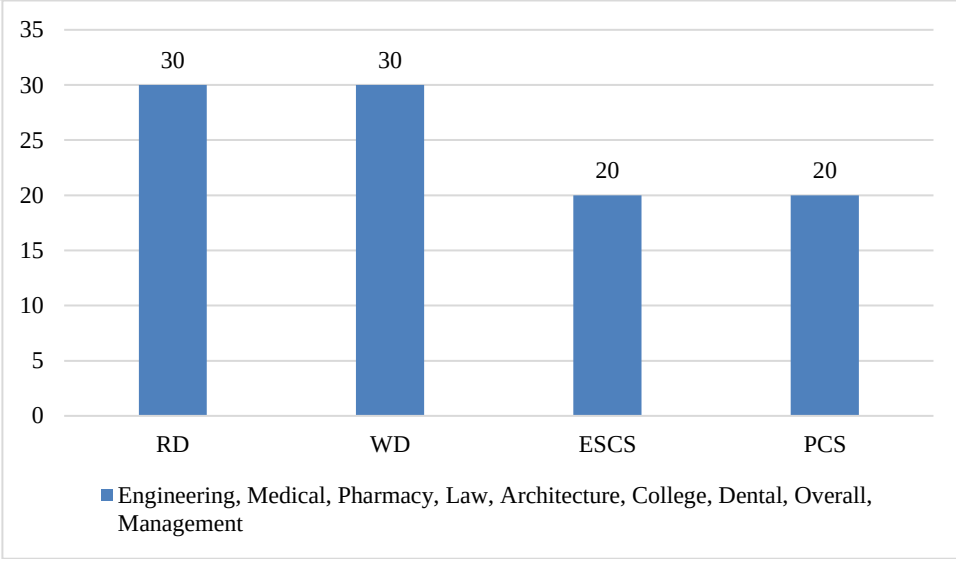

Figure 5: Comparison of OI Sub Parameters for Different category of NIRF Ranking

Comparison on Perception (PR)

The last parameter of NIRF Ranking is Perception which carry a total weight of 10% for all category of institution so detail comparison on this parameter is not needed and all the institutions can made equal effort to score good marks on this parameter (Srinivasan et al., 2020).

CONCLUSION AND RECOMMENDATION

The paper presented a comparative study on NIRF parameters for different category of NIRF ranking which is based on the review of various NIRF ranking manuals. The detailed review on each parameter and sub parameters indicates that the weight of each parameter for all the category of institution are same but the weight of sub parameters and its key indicators slightly varies. At some point it has been observed that some of the key indicators are required to recalculate the weightings specifically related to doctoral students are enrolled or graduated, or median salary, etc. There are sub parameters or key indicators which consider the number of Ph.D. students enrolled or awarded, but in faculty qualification Ph.D. is not considered or vice versa, i.e. the number of Ph.D. awarded is not considered for ranking calculation, but faculty with Ph.D. qualification is counted. The median salary plays important role in ranking, but it is observed that in some categories it is not there, where those courses involve significant amount of education expense. In India level ranking, the entrepreneurship is one of the important parameters that should be included with optimized tuning of parameters. It is need of time that graduates are pushing themselves from job seeker to job provider, and adding this as a key indicator to NIRF ranking will significantly promote higher education institutions to develop the eco system for entrepreneurship with the help of incubation center.

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