API Based Reward Model to Improve Regularity and Efficiency in Management Institutes

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Abstract

Purpose : The purpose of this research study was to explore the application of reward practice in the academic institutes of India affiliated to UGC through mathematical model and the reward framework positively affecting institutional performance.

Design/Methodology/Approach: A quantitative research approach was followed in this study. A mathematical model was developed using principle of polynomial interpolation and numerical analysis to design reward framework for the academic institutes. The validity and reliability of the model was assessed using different teaching credit workloads.

Practical Implications: The research study contributed to human resource practices in academic institutes. Mathematical model for reward framework was developed in this study, which is positively related to improvement in organizational performance. Academic institutes may benefit from these results by implementing and emphasizing non-financial rewards as part of a total rewards package. Application of the model has potential to influence business school faculty members' work regularity patterns.

Originality/Value : The study contributed to HR practices by shedding light on how to develop a reward framework using a mathematical model which can motivate employees to improve the efficiency in the academic institutes. Developed non-financial reward strategies can be a viable alternative to costly financial rewards to academic institutes that can lead to enhanced organizational performance in academic institutes.

Keywords: reward model, API score, polynomial interpolation, numerical analysis

JEL Classification : C30, C63, M12, M52

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W ork discipline is one of the most important research topics in human resource management. In the past several years, a great deal of research activities have been conducted in this area, and meaningful research papers have been produced. In recent years, the research scope of work discipline has been greatly expanded due to rapidly increasing competitive arena and work culture in the organization.

For any organization, its success is highly influenced by the organizational commitment owned by an employee to perform responsibilities in accordance with the duties assigned to employees. For improvement of employee commitment, organizations should look at the level of difficulties and efficiency of the employees to perform the tasks in the organizations. Effective recognition raises employee motivation and hence increases employee commitment and efficiency, which contributes to improved organizational performance. In order to ensure the effectiveness of an organization, it is required that employees working in the organization are motivated and this can be facilitated with the help of a reward system. Reward can get individuals to perform

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better, and it also promotes motivation. If good performance of an employee in the organization is rewarded, it will most likely happen again. A reward system is a process that inspires employees in organizations for taking a particular set of actions.

Several research studies have also suggested that rewards lead to motivation and job satisfaction, which in turn have a positive influence on the performance of the employees. Furthermore, rewards are one of the most efficient management tools when trying to influence group or individual behavior as to improve an organization's effectiveness. To motivate employees and to increase their performance, pay, promotion, bonuses, and other types of rewards are commonly used by the majority of the organizations.

Employee reward and recognition schemes are one way of motivating employees to change their work habits and key behaviors to benefit an organization. Employee reward systems refer to the schemes prepared by an organization to reward performance and motivate employees on individual or group levels. Wilson (2003) described rewards and their purpose, including systems, programmes, and practices that influence the actions of people. The purpose of reward systems is to provide a systematic way to deliver positive consequences. The fundamental purpose is to provide positive consequences for contributions to desired performance. The reward does not motivate to do only what is agreed on or considered normal, but to do more and better. The role of the reward system was discussed by Bragg (2002) ; Nujjoo and Meyer (2012) ; Jelley, Goffin, Powell, and Heneman (2012) ; Oke and Ezenachukwu (2007) ; Newman and Sheikh (2012) ; Rowland and Hall (2014) ; Prouska, Psychogios, and Rexhepi (2016) ; Heneman, Fiser, and Dixon (2001) ; and Lardner (2015) in their research studies and showed that the right combination of rewards is important for the better performance of an organization.

Reward Management

Reward management in an organization plays an important role for establishing the progressive work culture. Hence, it is unequivocally important for organizations to craft their reward system in such a way that it motivates employees to work efficiently in order to achieve the desired outputs. These decisions regarding the reward structure in organizations depend on the reward philosophy an organization subscribes to. Armstrong (2015) suggested the reward philosophy as 'broad values and beliefs that an organization holds about rewards'. The combination of reward philosophy, reward strategy, and reward policy renders a sound and sustainable reward structure to organizations. The economic and social exchanges are two important aspects for the relationship between an employee and employer. An employer extends the portfolio of benefits to compensate the skills and tasks offered by an employee. However, certain transactions usually go beyond the typical economic transactions considering the interdependence between them. This research paper, however, makes an attempt to understand the process of the reward system in organizations which encourages employees either at individual level or in group level. The important issue the reward management mechanism faces, these days, is to formulate the strategies for employees who cannot be penalized based on their poor performance for a particular task assigned. Since the criticality of the task is such, an organization would not risk jeopardizing the moral of employees. Hence, the functioning of reward management needs to be different compared to normal organizations.

The issue of reward management has been widely discussed by many researchers. Reward management has been more or less linked to the monetary aspects, and that too on the operational metrics instead of strategic point of view (Cumming, 1988). Technically, the reward can be associated with two identical dimensions: the magnitude to which the assigned tasks are accomplished and the effectiveness of results in terms of quality (Henderson, 1985). The most prominent problem regarding reward management has been found in public sector companies.

The performance based pay in companies has been challenged by many researchers. However, performance based pay system has reasonably claimed the attention of private companies in order to attain the desired

performance. The transparency and equity, these are two major challenges to be faced by companies while introducing the performance based reward mechanism (O'Donnell, 1998). In a similar manner, the performance based reward system was found affecting negatively on worker's intrinsic motivation (Kealesitse , O'Mahony, Lloyd-Walker, & Polonsky, 2013). This suggests that the reward system in an organization depends upon many factors, out of which the important one is nature of the organization. On the other hand, the total reward pay has also shown an increasing trend in adoption by organizations. According to Armstrong and Taylor (2014), the aim of reward management is to reward people for the value what they create and to motivate people and obtain their engagement and commitment.

The essential part of the reward program is that it should be fit into the organization culture and values. Simultaneously, a complete restructuring and reorganization of reward programs also helps to transform the organization (Cacioppe, 1999). Reward and recognition strategies can also encourage development and learning by stimulating risk - taking and trying new initiatives. Similarly, it is equally essential to the application of performance management and reward management since they have considerable resistance while implementing. These issues are always advised to be tackled carefully (Azzone & Palermo, 2011). The performance-based pay systems, which link pay to the several HR objectives, has always been difficult for HR professionals to deliver within their capacity. In their study about constructing a new reward strategy, Druker and White (1997) discussed that the techniques like competency-based or skills based reward systems and incentive schemes help to enhance the project team cohesiveness and synergy (Druker & White, 1997). The need for involvement of leadership in developing the reward system was suggested by Sylvia (2014). In addition to that, the connection between behavior and performance with the reward system need to be linked in order to increase the awareness of objectives so that employees can put the efforts in correct directions.

There are evidences which support that the reward procedures can be associated with the end user satisfaction. Allen and Kilmann (2001) in their study suggested that a firm should establish their reward practices in such a way that it complements its TQM strategies. The results of this study showed a positive effect between the reward program in the total quality management approach and performance. An emphasis on employee's performance has also been given to merit based plans to realize higher levels of firm performance. Literature on total rewards suggests that a higher number of tangible/intangible and financial/non-financial rewards increase individual and organizational performance. The study by Azzone and Palermo (2011) focused on a qualitative analysis of change in order to understand which factors facilitate the enactment process of employees' performance appraisal and reward systems. Armstrong, Brown, and Reilly (2011) in their research study suggested that increasing the effectiveness of reward management is very crucial since one of the most important concerns of reward management is how rewards can be used to motivate people to perform better.

Financial reward has always been important in managing employee's performance, but over the last 25 years, other elements of compensation have developed to provide employers with more scope to reward, and thus, motivate employees. In order to consider reward as a motivator, an organization has to prepare reward structures according to the importance of each task and individual performance of employees. Research has clearly shown that individual incentives have the largest impact on employee performance (Heneman, 2002). Another reason for individual reward setting is the "new" ways of delivering services, both within private and public sector service organizations. Design of a new reward system should not only look on what is done by employees, but also when it is done. During the last decade, production of products and services has become more and more customer oriented and customer specific. The demand for high quality in services has increased, and employers now do not only value the work results' quantitative aspect, but on the way the employees perform their tasks.

Employee engagement has become the most popular mantra for high organizational performance. Employee engagement is a part of best HR practices and higher levels of employee engagement helps organizations to improve organizational performance (Pandita & Bedarkar, 2015 ; Rao, Vani, & Meesala, 2014). The results of the

study by Day, Holladay, Johnson, and Barron (2014) showed that rewards and incentives play an important role in motivating employees to finish tasks on or before time and meet deadlines and maintain employee commitment and engagement. Organizations should appreciate employee performances and reward them suitably for improvement of employee regularity and efficiency.

In academic institutes, reward systems are seldom used by managements, and even if it is adopted, then it is ineffectively used in academic settings. This research study is initiated with the objective to investigate how a reward system can be developed for academic institutes. Most of the studies in the literature have focused on the reward for non-academic organizations in terms of finance or non-finance benefits, while this study discusses about Academic Performance Index (API) as reward for educational institutes in the Indian context.

Academic Performance Index

The self - assessment is a crucial part of performance evaluation as it gives an opportunity to every individual to assess his / her own achievements. Every individual should look across the past year and tell the higher authority what he or she has done, and areas the person would like to focus on. In academic institutes, faculty members are well familiar with assessment and evaluation of students. Academic performance index is a process of self-evaluation to determine the level of self-efficiency in an academic setup. Self-evaluation helps faculty members to figure out what are the strengths and weaknesses of faculty members.

The Performance Based Appraisal System (PBAS) with the Academic Performance Index (API) is a mandatory requirement for teachers of universities and academic institutes in India for applying to any teaching post or career advancement. The Performance Based Appraisal Scheme (PBAS) system was introduced by the University Grants Commission (UGC) alongside with the implementation of the Sixth Pay Commission in 2010, thereby making promotions under the career advancement scheme performance-linked and increasing the accountability of the university's teachers to improve the standard of universities in India. In UGC Regulations 2010, PBAS was linked with API to make it a more workable and academically useful model for the university teachers' promotion. The API was introduced as an attempt to link teacher selections and promotions to their academic performance. API was evolved as new mechanisms to screen teacher performance.

The Academic Performance Indicators (API) is a scoring system designed to incorporate transparent, objective, and credible methodology of analysis of the merits and credentials of faculty members based on weightages given to the performance of the teachers in different relevant dimensions. Based on the teachers' self-assessment, API scores are computed under Category I (teaching, learning, and evaluation related activities), Category II (extension and professional development related activities), and Category III (research and publications and academic contributions).

If the regularity and efficiency in administrative performance of faculty members in academic institutes are to be valued equally with credentials and achievements, then academic institutes will need to be more explicit in their recognition and rewarding of excellent performance in terms of regularity and efficiency. The Reward Framework designed in this research study provides a transparent mechanism for faculty members to plan and execute both the academic and administrative responsibilities in an efficient manner that will be valued and rewarded by the authority.

Reward Model to Improve Regularity and Efficiency

In this section, a theoretical framework of the research paper is discussed. Late submission at work by staff is a very serious issue to be handled at the organization. In a business school, faculty members are engaged not only in teaching and research activities, but are also engaged in several academic and administrative activities and have a

great amount of administrative responsibilities. Faculty members need to spend a lot of time for various administrative responsibilities like Programme Chair, Area Chair, Course Coordinator, Conference Chair, Placement Coordinator, Faculty Coordinator for students' clubs and committees, etc. So with regular teaching credit load and research related activities, each faculty member spends a great amount of time for administrative activities too. Since in a B-school, continuous evaluation of students' performance has a major role, besides teaching in a classroom, faculty members need to assess students' performance in each term through several assessment components. In every course, a faculty member is required to prepare a result and feedback sheet for each assessment component. Faculty members also need to keep record of each of his/her activities in a given term related to research like paper publication in journal, conference attended, status of minor/major research project, guiding students as Ph.D. guide, and need to submit reports over a period of time to the concerned department.

This paper discusses the framework which helps to design a system which monitors the submission time taken by each faculty for different tasks before submitting in the administrative office. Also, this framework helps to identify whether the submission is before deadline or late submission and calculate the extra API to be rewarded to each faculty for early submission of reports. This study develops a model which monitors the regularity of faculty members in terms of submission for each term and calculates API reward points to be awarded for each faculty member based on status of early submission of all reports in the respective term. A mathematical model is developed using polynomial interpolation and if implemented, it may resolve the issue of late submission by faculty members in B-schools. This system involves three tasks : (a) keeping track of each submission by faculty, (b) determining the status of submission as early or late submission, (c) developing a mathematical model relating to teaching credit load and API score to be awarded per term.

This research study focuses on the 3rd task and develops a mathematical model relating to the credit load of faculty and API score reward the faculty should be awarded.

Let, C = teaching credit work load of a faculty in a given term,
A = API reward to be awarded in a term based on credit work load.

Using a polynomial interpolation, a mathematical model is derived describing the relation between "C" and "A" such that API reward A will be a function of credit hour load C. To begin with using polynomial interpolation, we need certain initial values and upper bound. Now, if a faculty meets all deadlines, then what should be a reward to him/her ? The Table 1 represents the required data for A and C based on a fair consideration of credit work load and API reward. Here, for the interpolation, three initial data values are considered such that the model is limited to h = 0, 1, and 2.

The data in the Table 1 indicates that if a faculty meets all submission deadlines when his/her credit load is 1.5 hours per term, then he/she will be rewarded 0.25 API in his/her account for that particular term. This model develops an equation which helps to determine the API reward to faculty members for any work load in a given term. Hence, the model calculates API reward score for faculty members having work load of 1.5 or 4.5 or 6 credit hours, who is regular, and always before time in submitting necessary reports and results.

Using polynomial interpolation method, the mathematical relation between 'A' and 'C' can be expressed as follows :

Table 1. Value for API Reward *A* Corresponding to Credit Work Load *C* per Term

h	Credit Work Load (C)	API reward (A)
0	$C_0 = 1.5$	$A(C_0) = 0.25$
1	$C_1 = 3$	$A(C_1) = 1$
2	$C_2 = 9$	$A(C_2) = 2$

$$A(C) = \Sigma^p_{h=0} A(C_h) L_h(C) \hspace{4cm} \text{Equation (1)}$$

which represents the API reward points to be awarded to early bird faculty for different credit work load and

$$L_h(C) = \frac{N_h(C)}{D_h(C_h)}$$

Here, $N_h(C) = \Pi^p_{\substack{i=0 \\ i \neq h}}(C - C_i)$ \hspace{4cm} Equation (2)

The equation (2) is a product of the difference between the credit hours C, which is a credit load taken by a faculty for that term and the target credit load C_i.

Here, $D_h(C_h) = \Pi^p_{\substack{i=0 \\ i \neq h}}(C_h - C_i)$ $h = 0, 1, 2 ....p$ \hspace{2cm} Equation (3)

The equation (3) is a product of the difference between actual credit hour load in hours and the target credit hours.

Referring to the Table 1, we have three different cases of credit workload C_h and h takes values 0, 1, and 2. Hence, i may take values between 0 and 2. So, for the polynomial equation, the following terms can be obtained for different values of h.

h	$N_h(C)$	$D_h(C_h)$
0	$N_0(C) = (C^2 -12C + 27)$	$D_0(C_0) = 11.25$
1	$N_1(C) = (C^2 -10.5C + 13.5)$	$D_1(C_1) = -9$
2	$N_2(C) = (C^2 -4.5C + 4.5)$	$D_2(C_2) = 45$

Now from equation (1),

$$A(C) = \Sigma^2_{h=0} A(C_h) L_h(C), \ i = 0,1,2.$$
$$= A(C_0) * L_0(C) + A(C_1) * L_1(C) + A(C_2) * L_2(C)$$
$$= 0.25*(C)^2 -12C+27 * \frac{1}{11.25} \ \ +1*(C^2 -10.5C+13.5)* \frac{1}{-9} \ \ +2*(C^2 -4.5C+4.5)* \frac{1}{45}$$

On simplification, the above equation can be expressed as :

$$A(C) = \frac{-4C^2 + 63C - 63}{90} \hspace{4cm} \text{Equation (4)}$$

which is the mathematical model of the above problem. This derived mathematical model helps to know the API reward value for any credit work load C. Hence, amount of API to be rewarded to a faculty for submitting all academic and administrative reports before deadline can be obtained from the above equation (4) if credit work load of a concerned faculty is known.

Results and Numerical Analysis

The mathematical model developed in the previous section is based on polynomial interpolation. Since different

faculty members may have different workload, liner interpolation is not appropriate. To develop the model, I began with certain initial values and corresponding API points to be rewarded to concerned faculty on meeting all deadlines (see Table 1). The mathematical model derived shows a relationship between API reward *(A)* to a faculty and credit workload *(C)* of a faculty for a given term. When all deadlines are met by faculty members, then using the mathematical equation (4) : $A(C) = \dfrac{-4C^2 + 63C - 63}{90}$ API reward points can be calculated for any credit workload in a term which is shown in Table 2. For credit work load of 4.5 credit hours, the API reward point is $A(C = 4.5) = 1.55$.

Here, $A(C=4.5) = 1.55$ indicates that if a faculty member with 4.5 credit hours workload meets all the deadlines by submitting academic and administrative reports, then the API points to be rewarded to that faculty is 1.55 points. API reward for different credit workload from 1.5 to 7.5 is shown in the Table 2. For credit workload 1.5, 2, and 2.5, the API reward points are 0.25, 0.52, and 0.77, respectively. Here, credit workload is in hours and API score is numerical value for corresponding credit work load.

Now, for validity of this mathematical model, we take all known values as input which we have used as initial values like $C=1.5, 3$, and 9.

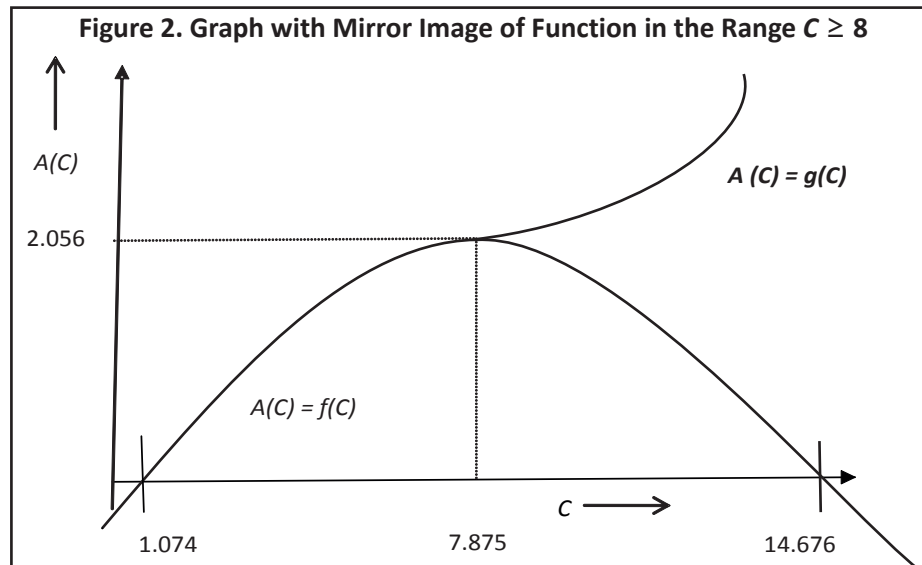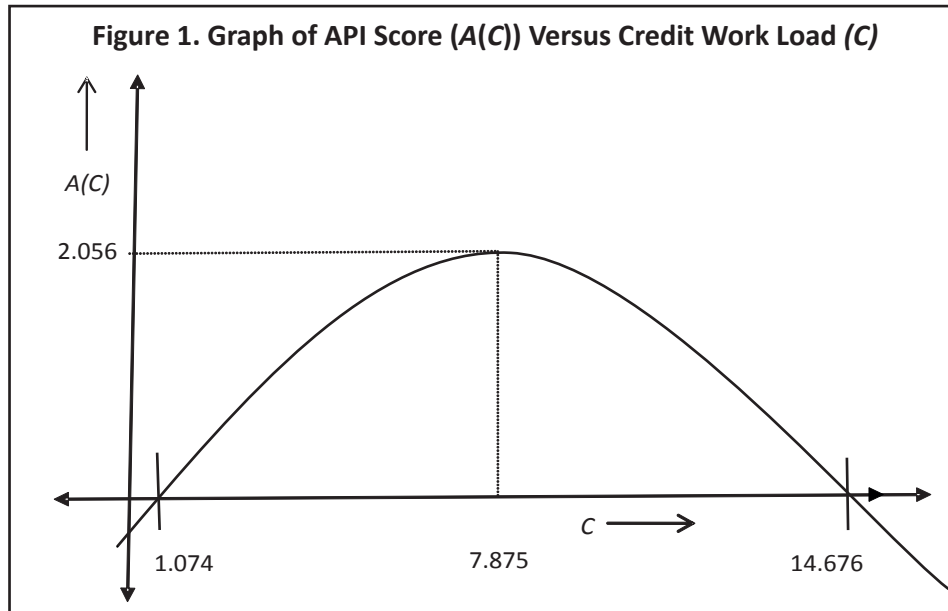So when, $C=1.5$ $A(C=1.5)=0.25$

$C=3$ $A(C=3)=1$

$C=9$ $A(C=9)=2$

Since for all these three values, the API reward is the same as expected in Table 1, it verifies the validity of the model. But the derived mathematical model, $A(C) = \dfrac{-4C^2 + 63C - 63}{90}$ is quadratic function in $'C'$ and if we plot this function on graph by the nature of quadratic curve, it may increase and decrease in certain intervals. So, for the validity of the model, we also need to identify the interval where given curve is decreasing. The Figure 1 represents the graph of $A(C)$ versus C for the derived model.

In Figure 1, we can observe that API reward point increases only when credit hours change in the range $C = 1.074$ to $C = 7.875$. Hence, the range for credit hours load in which reward point increases when credit hours increases is $1 < C < 8$. Any positive change in credit hours from $C = 8$ onwards will result in negative change in reward point. Hence, for this quadratic model, range of increasing is $1 < C < 8$ and range of decreasing is $C \geq 8$. API reward points earned by faculty member increases in the range $1 < C < 8$ for every increase in credit hour load. This is what the model should be, as a faculty member who takes more credit hours load in a given term and fulfills all the deadlines by submitting all academic and administrative reports may be awarded more reward points for each extra credit hours load the faculty member takes than other faculty members who have lesser credit

Table 2. API Reward Points for Different Credit Load

Credit	API	Credit	API
1.5	0.25		
2	0.52	5	1.69
2.5	0.77	5.5	1.81
3	1	6	1.9
3.5	1.20	6.5	1.97
4	1.39	7	2.02
4.5	1.55	7.5	2.05

Figure 1. Graph of API Score (A(C)) Versus Credit Work Load (C)

A(C)

2.056

1.074   7.875   14.676

C →

Figure 2. Graph with Mirror Image of Function in the Range C ≥ 8

A(C)

A (C) = g(C)

2.056

A(C) = f(C)

1.074   7.875   14.676

C →

hours load. Unfortunately, because of the nature of the quadratic equation, more reward points for a faculty with more credit hours does not work in the range $C \geq 8$. Hence, this model cannot be applicable when credit work load hours lie in the range of $C \geq 8$. In order to apply this model in the range $C \geq 8$, we need to develop a new mathematical equation for this range so that the reward points earned by faculty members increase as the credit-hour increases in a given term. This can be done easily by changing the direction of the curve in the opposite side when $C \geq 8$. The graph after change in the curve when $C \geq 8$ would look like as shown in the Figure 2.

With this new Figure 2, the above mathematical model can be written as :

$$A(C) = \begin{cases} f(C), & 1 < C < 8 \\ g(C), & C \geq 8 \end{cases}$$ Equation (5)

Since the derived mathematical model is applicable only in the range $1 < C < 8$, for this model :

$$f(c) = \frac{-4C^2 + 63C - 63}{90}$$

As model is not valid for any value of $C \geq 8$, we need to obtain new equation $g(C)$ for this range. Since, the graph of $f(C)$ with changing the sign in equation would give opposite direction curve as desired, we first change the sign of $f(C)$ and obtain new equation $h(c) = -\left(\frac{-4C^2 + 63C - 63}{90}\right) = \frac{4C^2 - 63C + 63}{90}$

Plotting both equations $f(C)$ and $h(C)$ on a graph, we observe different shapes of both the functions as shown in the Figure 3.

From Figure 3, we can see that $h(C)$ is a mirror image of $f(C)$ about the C - axis with high *(h)* and bottom *(b)* are the maximum (2.056) and minimum (2.056) value of function $f(C)$ and $h(C)$, respectively. If we shift the $h(C)$ upward by 4.112 ($= 2.056 + 2.056$), then point h and b will coincide. This is possible by adding 4.112 to $A = h(C)$. The new function hence obtained will be the desired function $g(c)$ as shown in Figure 2 and function $g(c) = h(C) + 4.112$.

$$= \frac{4C^2 - 63C + 63}{90} + 4.112$$

$$= \frac{4C^2 - 63C + 63 + 370.125}{90}$$

$$g(C) = \frac{4C^2 - 63C + 433.125}{90} \qquad \text{Equation (6)}$$

Hence, mathematical model shown in equation (6) can be written as :

$$A(C) = \begin{cases} f(C), & 1 < C < 8 \\ g(C), & C \geq 8 \end{cases}$$

where,

$$f(C) = \frac{-4C^2 + 63C - 63}{90}$$

$$g(C) = \frac{4C^2 - 63C + 433.125}{90} \qquad \text{Equation (7)}$$

Since API score calculated for any given value of credit hours load C using equation (7) increases as the credit hour load increases, this model is now applicable for any value of credit hour load C. The result of the model for different value of credit hours load C is shown in the Table 3.

This research paper discusses how to improve regularity and efficiency of faculty members in terms of submission at work. Since faculty members in B - schools are involved in the various academic and administrative activities, they have different priorities for several reasons. Hence, it is difficult to meet deadlines and submit the necessary results and administrative reports before due date.
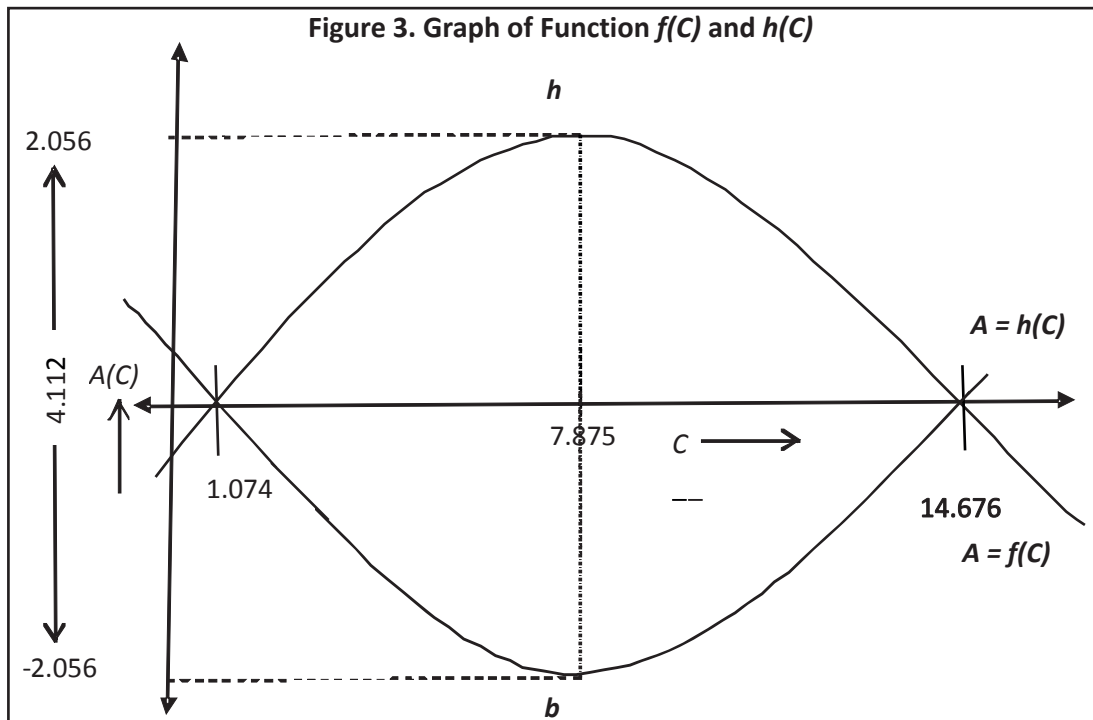
Figure 3. Graph of Function *f(C)* and *h(C)*

Table 3. Results of the Model for Different Values of Credit Hour Load

Credit	API	Credit	API
1.5	0.25	10	2.26
6	1.9	12	2.81
9	2.11	12.5	3.00

Also, different faculty members have different teaching credit hour load in a given term ; hence, it is also challenging for them to meet deadlines when having more teaching credit workload. Also, there is no motivation for faculty members who submit all the results and administrative reports before the due date as compared to faculty members who override the deadlines. This reward model would motivate the faculty members to submit all results and reports before the deadline since faculty members earn certain API as reward based on credit load for that particular term. It is a challenge for faculty members with heavy teaching load to submit the results and reports before due dates. Since this model is derived using polynomial interpolation, a faculty member with more teaching load will earn more API reward points than a faculty member with lesser teaching load. This encourages the faculty with more loads to give highest priority to submission at work.

Conclusion

This research paper presents a framework to develop a mathematical model for reward system designed for the academic and administrative work environment and to determine an ideal value of reward in terms of API for faculty members based on the performance in terms of regularity and efficiency. Traditionally, performance improvement focused on many aspects of human resource management such as learning, coaching, training and development; however, this research study has focused on designing a reward framework for faculty members of the academic institutes to improve performance in an administrative environment.

A reward strategy within an organization needs to be relevant to current needs and expectations of the employees. Reward management is an important aspect in improving performance and satisfaction as rewards can lead to higher performance. This research study focuses on formulation of a mathematical model for reward strategy which can have effects on faculty members' performance in the administrative work environment. Since different faculty members have different teaching workload, linear interpolation is not appropriate, but a fair approach is required in the computation of the API reward earned by faculty members based on workload in a given term. Thus, the principle of polynomial interpolation and numerical analysis is used to develop the mathematical model. This is a strong feature of the model developed in this study, which presents fair assessment in which faculty members having a higher workload get more reward for meeting deadlines than faculty members with lesser workload who have an advantage in terms of completing the task earlier and submitting before due dates.

Managerial Implications

This research framework and mathematical model have important managerial implications for administrators of academic institutes looking to enhance the organizational commitment of their faculty members in traditional societies through the provision of appropriate organizational rewards in the form of API. As performance-based rewards affect the performance of faculty members in different ways, the framework for performance based rewards developed in this research study would motivate faculty members and increase their performance as well as improve productivity and efficiency. This model can be used to prepare reward strategy for university academics as well. Using this mathematical model, assessors will be able to make a direct link between the performance indicator using teaching load and rewards in the form of API.

Limitations of the Study and Scope for Further Research

The mathematical model derived in the present study did not consider all the factors which affect the completion of the task. Since the probability of a faculty member completing the task before the deadline in the given academic environment is uncertain, a number of factors that affect completion and early submission of tasks at the workplace could be built into the model to make it more realistic. Thus, future research may consider the development of a more reliable model using the stochastic technique for examining such factors. Although the faculty members were chosen for the study, future work could extend it to higher administrative cadre of staff in the academic institutes or other categories that are deemed fit.

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