# GAME-INSPIRED FRAMEWORK SUPPORTING FACULTY MANAGEMENT

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**Abstract:**
Increasing faculty workload is one of the primary sources of stress and job dissatisfaction. For a better balanced workload a source of precise and up-to-date information on activities carried on by faculty is needed. In this paper we propose a framework incorporating game design elements that has manifold advantages. It informs faculty members about the full range of activities they are expected to get involved in. It incentivizes faculty members to report their effort and achievements by rewarding them with points. The earned points can then be used as a benchmark of faculty work, and to construct faculty rankings, which are informative for the management and also motivating for faculty members. As a result of implementing the proposed framework, the management can be not only aware of the real workload of respective faculty members – helping to avoid overloading them with tasks, but also identify neglected areas of faculty work, and direct faculty members' attention to them.

*Keywords: faculty management, faculty work, game design elements*

# 1. INTRODUCTION

## 1.1. Background

Traditionally, the faculty work consists primarily of teaching, scholarship, services, and often also administrative duties. Although in some countries, there is a trend of introducing new types of faculty appointments that are limited to merely one of these areas (Gappa et al., 2007, p. 16; Schuster & Finkelstein, 2010, p. 189), we assume the traditional model to remain valid in a vast majority of higher education institutions.

Even though in the traditional model, the individual institutions, depending on their type, tend to emphasize one or another area (Lyons Frolow, 2010, p. 13), yet the members of faculty are not allowed to neglect the remaining areas (Bergeron et al., 2008, p. 13). It is desired that both research and teaching are devoted a fair amount of time, effort and recognition (Linkon, 2005, p. 32). In reality, however, only about one-fifth of faculty simultaneously achieved high productivity in both teaching and research, according to the results of Fairweather's survey (2002).

Achieving this goal becomes even more difficult as both research and teaching demands are increasing (Schuster & Finkelstein, 2010, p. 79). Faculty members have to keep up with the rapid growth of knowledge – not only in their own areas of expertise but also at its intersections with other disciplines, as the students are increasingly diverse in their backgrounds and areas of interest – and track new technologies and innovative research techniques (Gappa & Austin, 2010, pp. 5-6). Moreover, they are burdened with a lengthy list of secondary, yet time-demanding tasks, such as various committee meetings, preparing reviews, as well as reading and responding to e-mails that keep coming from peers, administration, and students (Jacobs & Winslow, 2004, p.109). Often, they become also involved in institutional initiatives such as student recruitment and retention activities, student and colleague mentoring programs, fundraising efforts, and strategic planning (Higgerson & Joyce, 2007, p. 4).

It all results in more work for faculty members:

- the proportion of faculty reporting that they work more than 55 hours a week has grown from 13 percent in 1972 to 44 percent in 2003 (Gappa & Austin, 2010, p. 6);
- over 82 percent of faculty points to the lack of personal time as the primary source of stress (Hurtado et al., 2012, p. 4);
- unbalanced workload is one of the main job exit reasons pointed to by those leaving faculty (Teodorescu, 2012, p. 172 and works cited there).

## 1.2. Motivation

One of the key conclusions of Jacobs & Winslow (2004), regarding the reasons for dissatisfaction, is that it "is not just how many hours one works but whether one is doing the kind of work one finds most satisfying" (p.117). As the main principle of faculty management in higher education institutions could be stated as "discovering talent, developing talent, and enjoying the benefits of talent" (O'Meara, 2005, p. 284) one should certainly avoid flooding the developing talents with tasks they do not find satisfying in order for them to become productive. Therefore, the management is in need of up-to-date and exact information on the workload put on every member of the academic staff. The usual semester and annual reports produced by faculty have neither of these qualities.

With so many areas of activity, another threat materializes in a form of concerns about unrealistic expectations of faculty that they must excel in all areas at the same time and their greater confusion and ambiguity about what really counts for promotion and tenure (O'Meara, 2005, pp. 263-264). On the other hand, standard activity report forms may provide no place to list non-standard activities, no matter how much time and effort they consumed and/or how beneficial they were for the institution or the community; or, if they do, such activities are often misunderstood, ignored or even criticized (Moore & Ward, 2010, p. 51). Certainly, faculty should have an opportunity to report any scholarship-related activity, regardless of its type, and receive appreciation adequate to the actual effort and the postitive impact of its results.

### 1.3. Approach

In this paper, we propose usage of selected game design concepts to form a framework supporting faculty management. The use of game design elements in non-game contexts is known as gamification (Deterding et al., 2011), otherwise defined as "the application of gaming metaphors to real life tasks to influence behaviour, improve motivation and enhance engagement" (Marczewski, 2012, p. 4). There are ardent proponents of gamification (see, e.g., McGonigal, 2011), fierce opponents of gamification (see, e.g., Chorney, 2012) and proponents of gamification who are against doing it wrong (Deterding, 2011). Abstaining from involvement in this dispute, we will not try to convince the reader that our approach is genuine gamification, rather, we shall only refer to it as game-inspired.

### 1.4. Contribution

Our main contribution is a framework supporting faculty management, using a number of game-inspired concepts. We state its goals and define its key design concepts, list areas and activities covered by the reporting, and provide implementation remarks. To the best of our knowledge, no such framework has been proposed before (see, e.g., Mochocki, 2012 for a list of relevant readings).

## 2. KEY DESIGN CONCEPTS OF THE PROPOSED FRAMEWORK

### 2.1. Points

The core concept of the proposed framework is that every effort and success within any of the areas of faculty work should result in points being awarded to the respective faculty member. The current number of points can be used as an overall benchmark of recent faculty work; the current number of points earned in a specific area (e.g., research, teaching) can be used as a benchmark of faculty work in that area.

As much as benchmarking is proposed as a vital tool for driving efficiency on a macro level of largely autonomous higher education institutions (Universities UK, 2011, p. 6), we assume it is about equally useful on a micro level of largely autonomous faculty members. Our assumption is backed by findings of Jung et al. (2010), that "groups provided with individual performance feedback will outperform groups not provided such feedback" (p. 729).

An all-embracing benchmark of both efforts and successes in all the areas of faculty work would be useful in many apects. To the management, it would give an aggregate measure of faculty members' engagement in diverse activities. To faculty members, it would give feedback that their work is noticed and appreciated. We also believe that, thanks to accessibility of this information, the management could avoid dumping new tasks on the faculty members who are already overburdened with workload. Benchmark points can be used to form rankings that not only serve as good sources of information about effciency of faculty work, but also have powerful motivating effect on faculty members:

- leading faculty members may compare their benchmark to other hard-working faculty members and thus get rid of the frustrating feeling that they are exceptionally exploited,
- lagging faculty members may become much more engaged in order to escape from the bottom of the ranking list,
- other faculty members may become more engaged in order to improve their rank.

The current number of points is a benchmark of *recent* faculty effort and success. Therefore, at the start of any month $m$ the initial number of points $p(m)$ is set to $p(m\text{-}12)/2$. Thus, points earned a year ago count only half as much as points earned later, points earned two years ago count only one-fourth as much as the most recent ones, and so on. The current number of points, as used to construct rankings, is therefore the sum of $p(m\text{-}d)$ for each integer $d$ from 0 to 11.

Points can be earned in three ways:

- for an effort in performing some activity (e.g., carrying on classes, preparing syllabi, performing experiments); the number of awarded points depends only on the time spent on performing the activity;
- as a bonus for completing some task (e.g., having prepared a syllabus, having written a report on experiments, having submitted an application for research funding); the number of awarded

points depends on the type of the task and whether it was finished within the allowable time limits; note that completing the task depends only on the faculty member doing it;
- as a bonus for succeeding with some work (e.g., a supervised thesis receiving an award, a paper accepted for a conference, getting funding for research); number of awarded points depends only on the type of the work; note that succeeding with some work does not depend only on the faculty member doing it (e.g., due to strong competition, skewed reviews, etc.).

## 2.2. Mechanisms for commissioning and reporting work

Area activities are repetitive activities typical for a specific area of faculty work (e.g., mentoring students for teaching). Faculty members simply report having performed (or completed, or succeeded with) any such activity, without having to have it assigned first. The report should contain basic information necessary to verify the activity, e.g., short description, target group, time span, place.
As Jung et al. (2010) found out that “the effect of individual performance feedback will be stronger when providing an explicit goal versus a »do your best« goal” (p. 730), apart from the area activities, the proposed framework features tasks, missions, and quests. These are the tools that the management can use to foster engagement of faculty members, and directly reward them for completing specific tasks, particularly those desired by the management but less desirable by faculty members. This is especially useful when other rewarding options are not available.

Task is a clearly defined area activity (e.g., write a report on *X*; mentor student group *Y* on their project *Z*) that is assigned to faculty members. Tasks can be:
- delegated: the responsible faculty member is selected by the manager,
- voluntary: the task is listed on a bulletin board, where any faculty member can choose it and become responsible for it, or
- self-appointed: the task is defined by responsible faculty members themselves (this is a kind of planning of one's own future activities).

Each task has a due date; accomplishing a task within that date results in earning completion bonus, failing to do so may result in receiving a penalty (negative points). Self-appointed tasks have no additional bonus (compared to the core activity to be performed) or a penalty, but their status may be changed to delegated by the management upon a request of the responsible faculty member, as an acknowledgement of their importance.

Mission are sets of tasks with a due date to complete them all. The component tasks may be listed explicitely (e.g., do *X*, do *Y*, do *Z*) or expressed quantitatively (e.g., write *N* journal papers). Like tasks, missions can be delegated, voluntary or self-appointed, and bring additional bonus points upon completion.

Quests are sets of missions, usually, but not necessarily, with a due date to complete them all. The missions of a quest may need to be completed in a specific sequence. Like missions, quests can be delegated, voluntary or self-appointed, and bring additional bonus points upon completion.

## 2.3. Levels and badges

Whereas the current number of points can be used as a benchmark of recent faculty work, the faculty member's level is a benchmark of their lifetime accomplishments. The level increases as the points are earned. There is no scaling down, like in the calculation of the current points, so a point earned at the beginning of one's career counts, towards level advance, exactly as much as the most recent one. Level cannot go down, even if points are deducted.

The number of points needed to advance grows with the level: it is more demanding for experienced faculty than for fresh adepts. Faculty need not do anything extraordinary for their level to advance, but the hard working faculty members will see it much sooner than the lazy ones.

Extraordinary achievements are awarded with badges. There are three kinds of extraordinary achievements distinguished in the proposed framework:
- single event achievement, that is achieving an important professional success (e.g., obtaining a scientific degree, receiving an award, registering a patent, publishing in a journal with a high impact factor);

- short time period achievement, that is earning an impressive number of points in a given area, in short period of time (e.g., earning *X* research points during one month);
- lifetime achievement, that is performing some activity for a very high number of times (e.g., supervising a *Z*-th M.Sc. thesis).

Badges have names and levels of their own. Badge name (as well as graphical symbol associated with it) depends on the type of achievement (e.g., Master Mentor awarded for a lot of mentoring). Badge level depends on the time particular badge is awarded. The first achievement of a kind results in awarding a level one badge, consecutive achievement of the same kind will result in increasing the level of the badge. The requirements for attaining a higher level badge may, but need not, increase with the level.

## 3. COVERED AREAS AND ACTIVITIES

The proposed framework distinguishes four traditional faculty work areas: teaching, research, services and administration. Every point earned is counted for one of these areas, depending on the type of activity. For the sake of simplicity, each activity covered within the framework is assigned to a single area (e.g., carrying on classes belongs to teaching). In reality, some activities may be spanning over two or more areas, e.g., mentoring a student group developing a project helping local community which produces valuable source data belongs to teaching, services and research at the same time. In the proposed framework, such activities should be assigned to one area (e.g., teaching for the given example), however, additional points in other areas may be received later, e.g., for analyzing the obtained data (in research) or receiving an award from the community (in services).

Tables 1-4 list activities covered within the area of teaching, research, services, and administration, respectively. The *Effort* column contains activities that should be awarded on time-spent basis, the *Completion* column contains activities that should be awarded on their completion, and the *Success* column – on successful outcome. The order of activities in respective columns should be considered as random.

The proposed list is not universal or complete; every institution implementing the framework should define its own list of reported activities; therefore, the proposed list should basically serve as a checklist, helping to avoid missing specific types of activities.

**Table 1:** Teaching area activities

| Effort | Completion | Success |
|---|---|---|
| Reading literature on subject being taught | Training in subject being taught | Obtaining certificate in subject matter |
| Preparing syllabi | Training in teaching methods | Obtaining certificate in teaching methods |
| Preparing instructional material | Submitting a syllabus | Publishing a textbook |
| Carrying on classes | Publishing a lesson in the Internet | Published textbook receiving an award |
| Communication with students | Publishing a lecture in the Internet | Supervised thesis accepted |
| Preparing homework | Supervised thesis submitted | Supervised thesis receiving an award |
| Consulting and assessing homework | Lecture or a workshop for students on a subject outside of curriculum | Research work with acknowledged mentoring accepted for a conference or a journal |
| Examining students and assessing exams | | Research work with acknowledged mentoring receiving an award |
| Supervising students' theses | | |
| Mentoring students on their research work | | |

Source: own elaboration

**Table 2:** Research area activities

| Effort | Completion | Success |
|---|---|---|
| Reading literature on subject being researched | Training in research tools and techniques | Obtaining a scientific degree |
| Preparing tools for experiments | Publishing a research report | Receiving a scientific award |
| Preparing experiments | Publishing software supporting research | Obtaining external research funding |
| Performing experiments | Presentation at a scientific meeting | Registering a patent |
| Gathering data | Submitting an application for external research funding | Publishing a paper |
| Analyzing data | | Presentation at a conference or a workshop (reviewed) |
| Writing research reports and papers | | Publishing a book as a scientific editor |
| Correspondence with peers | | Being cited in a published work |
| Mentoring peers | | |
| Attending conferences and workshops | | |
| Involvement in an external research project | | |
| Study visits | | |
| Preparing an application for external research funding | | |

Source: own elaboration

**Table 3:** Service area activities

| Effort | Completion | Success |
|---|---|---|
| Attending teaching and research board meetings | Chairing a conference session | Implementation of patent |
| Editing source texts, scientific works or textbooks | Lecture or a workshop for non-students | Implementation of research results |
| Involvement in scientific and professional societies' activities | Membership in conference organizing committee | Invited presentation at a conference or a workshop |
| Involvement in student recruitment and retention activities | Reviewing a conference or a journal paper | Membership in conference scientific committee |
| Involvement in student scientific association activities | Reviewing a thesis | Membership in international organization's technical committee |
| Involvement in the university's planning activities | | Membership in journal editorial board |
| Involvement in the university's promotional and marketing activities | | Membership in journal scientific board |
| Organizing conferences and workshops | | Nomination for a chair in scientific and professional societies' |
| Serving as a consultant for government agencies | | Publishing a book as a technical editor |
| Serving as a consultant for industry | | Publishing a book as a translator |
| Serving as a consultant for non-government organizations | | Receiving an award for work for community |
| Serving as a judge in scientific contests | | |
| Translating source texts, scientific works or textbooks | | |

Source: own elaboration

**Table 4:** Administration area activities

| Effort | Completion | Success |
|---|---|---|
| Attending management meetings | Training for management staff | Receiving positive assessment after inspection |
| Planning activities | Teaching inspection | Work report accepted |
| Motivating activities | Submitting work report | Financial report accepted |
| Coordinating activities | Submitting financial report | Obtaining external non-research funding |
| Control activities | Submitting an application for external non-research funding | Receiving positive media attention |
| Communication with subordinates | | Signing a cooperation agreement with other institution |
| Preparing work reports | | |
| Preparing financial reports | | |
| Cooperation with other institutions | | |
| Preparing an application for external non-research funding | | |
| Staff recruitment and retention | | |

Source: own elaboration

## 4. IMPLEMENTATION REMARKS

For practical reasons, the implementation of the proposed framework should be supported with software handling the activity and faculty databases, and allowing for task assignment and reporting, as well as updating rankings. Developing such software under open source license is envisaged as future work.

Successful implementation of the framework requires a deliberate strategy to ensure that faculty, especially the part of it that is reluctant to changes and/or content with status quo, will accept it. First of all, it is important to make faculty aware of the virtues of the framework, and that the activity reporting process is simple and not time-consuming.

Faculty members should be involved in the implementation process, especially in determining the list of covered activities and points awarded for them. The activities awarded on time-spent basis are the base, as they all receive the same points per worked hour.

The bonus for activities awarded on completion should be in the scale of the average time spent on completing specific activity, yet it may be significantly higher for tasks requiring higher skills and lower for simple tasks. Take notice that completion of a specific work is much easier to verify than mere effort, which may often be exaggerated in reports, consciously or unconsciously. This may be a reason justifying higher completion bonuses.

The bonus for activities awarded on achieving success should be much higher, especially for the types of activities in which success is rare. This way, faculty would get extra motivation to pursuit the success; on the other hand, the success bonuses should not be too high, as a tiny success should not be worth more than a lot of hard work at the foundations. Certainly, balancing the point awards properly is the critical success factor for the framework implementation. Highly probably, the system will need adjustment after a certain period of usage, if its users agree that there are activities over- or undervalued.

In order to make faculty members actually use the framework, the management should:

- actively use it themselves, i.e., report their own activities through the framework,
- enforce its usage by subordinates, by assigning delegated tasks within the framework,
- engage eager adopters by offering a number of voluntary tasks through the framework,
- give real-world rewards (e.g., financial) for the top-ranking faculty members.

An important issue that may arise after adoption of the proposed framework concerns the reliability of reported data. Some of the reported activities can be easily verified after their completion, others can not – e.g., hours spent working at home. Certainly, inflating effort figures for a long period of time without reporting corresponding completions and successes can hardly pass unnoticed, yet small discrepancies, introduced consciously or unconsciously, can. If the management lacks confidence in data reported by faculty, time tracking software, such as Replicon or TimeDoctor, can be used to monitor faculty work on computers which is otherwise difficult to verify.

## 5. CONCLUSIONS

According to the published survey results, faculty workload increased considerably in recent decades (Gappa & Austin, 2010; Hurtado et al., 2012), becoming a substantial source of job dissatisfaction (Jacobs & Winslow, 2004). Overcoming this issue can be much easier having access to precise and up-to-date information on what the faculty members are spending their time on. The additional reporting duties cannot, however, be imposed as another bureaucratic requirement, as it would hardly be accepted by faculty.

In this paper we propose an elegant solution, inspired by game mechanics, that is advantageous to both the management and the academic staff. Faculty members are incentivized to report their effort and achievements by being awarded with points and badges. They are informed about the full range of various types of activities they may be rewarded for doing, completing, or achieving success in. The points earned by respective faculty members can be used as a benchmark of their work, and to construct faculty rankings. This mechanism helps leading faculty members in choosing the most fruitful activities to spend their time on, and motivates lagging faculty members to engage more with their work.

The management gets information on the real workload of respective faculty members – helping to avoid overloading them with tasks, as well as on neglected areas of faculty work, allowing them to direct faculty members' attention to them.

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