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From inner motivation to professionalism

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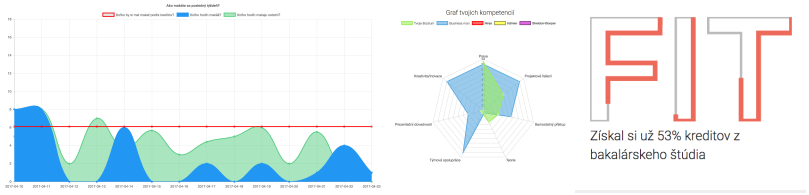

Abstract

College life can be pretty stereotypical which leads to smaller engagement in university topics and study in general. Students' biggest goal at the university is to get an title from their Alma Mater. The goal is 5 years away which leads to decrease in inner motivation of the student to finish the school and get their title. This work divides college life and students 5 years goal into smaller pieces and goals to motivate them to study and become a professional in their main specialization by tracking their study logs and showing them their study progress. Application affects their inner motivation by comparing their results and working time with other students at the university.

Keywords: motivation — learning — excellence

Supplementary Material: Online application

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1. Introduction

College life is made up of five years of study, respectively ten semesters. Each semester consists of lectures, exercises, projects and tests that examine students' knowledge in theoretical and practical level. After a few semesters, such a life may seem stereotypical and it needs to spice up, reshape. Gamification can bring the imaginary spice that disrupts the stereotyped days and help students regain motivation and determination to study.

Gamification can be described as the process of using game mechanics and the game thinking in engaging users and troubleshooting. It is true that Gamification is just a bunch of points in many people eyes. The fact is, Gamification changes repetitive daily tasks to more interesting by adding an extra layer. It may not yet be a change of the task, many times simply adding a checkpoint or modifying the task meaning of in the eyes of a student or employee.

Gamification is used in many applications but often just as some sort of points, leader-boards, and badges. Yu-Kai Chou, a globally recognized expert for Gamification created the Octalysis framework which takes PBL (points, badges and leader-boards) just as a small part of the Gamification.

The application was developed using principles of Octalysis framework and it helps students to see college life as a journey to their career in a world of IT professionals. It affects their intrinsic motivation and it helps to visualize their study progress. Application targets students that are affected by stereotype in their life and extrinsic and intrinsic motivation to study is decreasing. It also helps new students to plan their university journey by composing their lectures to see their professional profile.

2. Gamification and Octalysis

The reason why Gamification is derived from the word game is that the gaming industry was the first to demonstrate the impacts of games on human motivation, involvement and emotions.

Gamification helps us to divide objects and tasks

into smaller goals that are challenging enough, but still achievable. Gamification principles gives us opportunities to reshape these objectives and fulfill them with entertainment, competitiveness and curiosity. Gamification can thus be characterized as the use of gaming principles beyond the game to solve problems, increase motivation and engagement in the tasks.

The following chapter discusses the view of motivation in terms of Gamification and gives us short view at Octalysis framework.

2.1 Motivation

The motivation can be divided into 2 parts.

Extrinsic motivation[1] occurs if an individual works or performs an activity in order to obtain rewards, trophies or trying to avoid punishment. We should put pressure on extrinsic motivation if we want to create a need in doing certain thing if the individual previously did not care about it. Cease of reward also means cease of extrinsic motivation.

Intrinsic motivation[1] comes from within the individual and we can talk about it when a person is engaged in any activity because they enjoy it or it has a positive effect on his psyche.

If we take a look at intrinsic and extrinsic motivation in school, we can see the big difference. If a student attends lectures and exercises just to pass the exams and finally graduate, we talk about the extrinsic motivation. However, if a student studies to get acknowledged, discover new ideas and technologies or work on his own projects, we can talk about intrinsic motivation.

2.2 Octalysis framework

[2] Octalysis framework was designed by Yu-Kai Chou and it describes a method of analysis and design of systems that introduce game elements into their design. Framework focuses on eight key elements that motivate people to certain actions or decisions. A model presents octagon whose edges describe individual elements.

This model is further divided into so-called Whitehat and Blackhat [2] sections describing elements of intrinsic and extrinsic motivation.

Whitehat parts of Octalysis are:

1. Epic meaning and calling
2. Development and accomplishment
3. Empowerment of creativity and feedback

Blackhat parts of Octalysis are:

1. Scarcity and impatience
2. Unpredictability and curiosity
3. Loss and avoidance

Two sections of Octalysis framework which are on the edges of the whitehat/blackhat part of framework are Ownership and Social influence. We will see the usage of Octalysis elements in later chapters.

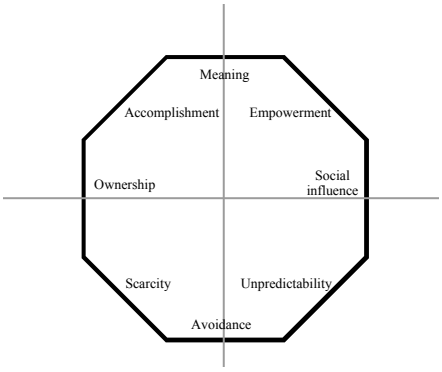

Figure 1. Octalysis framework

3. FIT Gamification

As I already mentioned in the Introduction section, college life can be really stereotypical. According to my research between students of our faculty, I discovered that half of them lost their motivation to study in the second year of university. I also discovered, that more then 42% of students are motivated by vision of higher salary. As I already said, being motivated by money belongs to extrinsic motivation. Extrinsic motivation do not last for a long time and can cause problems in the future. And as we can see, the problems are real. Students lose their motivation during the school and that needs to be changed.

I want to try to solve these problems using Octalysis framework, Gamification principles and modern technologies.

3.1 Solving decreasing motivation

Lack of motivation or rapidly decreasing intrinsic and extrinsic motivation can be solved in many ways. I think that using Gamification and **dividing one big goal into many smaller ones** is a good way how to do it. For example, a smaller goal is passing the semester.

Octalysis parts named **Development and accomplishment** and **loss and avoidance** can be used here. Loss and avoidance principle is stimulating both extrinsic and intrinsic motivation, because if someone invest time in something, he does not want to lose it. Development and accomplishment aims for people that are motivated by meeting a specific goal. It is used for example in the Duolingo application, where every user of the Duolingo can see the progress of other users in learning a new language.

Motivation can also be stimulated by allowing students to create specific IT profiles and allows them to follow their path to the profile that was chosen. **Social influence and relatedness** principle is applicable here, because it involves activities inspired by what other people have said, thought or done. If some students' dream is to become the best SCRUM master in the world, he will follow the path of other scrum masters and he will try to do the same things as they did. A student should be allowed to choose whether he wants to be the engineer, businessman, ninja or someone like Sheldon Cooper from The Big Bang Theory series. Showing him their profiles could be great way how to stimulate him to be like them. Charts and leaderboards can be used here as the main Gamification tools together with time restricted offers (daily quests for example) and easter-eggs.

Summing it up, intrinsic motivation can be stimulated by showing students their status quo on the path to become the IT professional and extrinsic motivation can be affected by comparing student's results with his classmates and showing him way how to be better than his classmates.

3.2 Connecting people

Students are often forced to do everything by themselves which can lead to motivation decrease, because no one likes to define a wheel again. That is why the joint documents and folders, group chats and students forums are pretty common. Octalysis core drives **Epic meaning and calling** and **Social influence and relatedness** can be leveraged here. Epic meaning and calling occurs, when users perform certain activities because they believe that the result is greater than themselves. As an example, we can use Wikipedia, where people contribute voluntarily and without profit. Wikipedia contributors believe that their knowledge will help future generations. If the user is motivated by a specific mission, does not matter for his own individual pleasure. Retell this definition in the school context and here we go - joint documents and shared folders with interesting materials. Lack of motivation to study or work hard enough to finish the school can be also lifted up by comparing workloads of each student with his classmates as was already mentioned in the Solving decreasing motivation section.

4. How you doin'?

Let's dive into application so-called "How you doin'?". This application solves problems with motivation and loneliness at the faculty by creating online hub for students, where they are able to:

1. log time spent in school
2. compare logs with other students
3. track school terms
4. see their journey towards IT fields
5. compose their subjects and see the final IT field
6. collect links and other useful stuff for subjects

The application can be divided into two main modules - profiling module and workload module.

4.1 Profiling module

The main intention of profiling module is to show student his way to become an IT professional and divide his main goal into smaller ones. It allows students to:

- create their dream IT profile
- analyze their current IT profile
- analyze their current profile in non-IT fields

Students are allowed to create wishlist of subjects and to compose their school schedule towards an IT field. They can also look at the profiles of various job positions. For example an engineer or businessman. Student's current profile is based on subjects which he completed and registered. These data are visualized using radar chart and histograms. The competence chart can be seen in Figure 3. IT profile chart can be seen in Figure 2

4.2 Workload module

Workload module can be characterized as a module which connects people and helps to create a little rivalry between classmates. It also helps to create joint materials for the study. This module allows students to:

- log time spent in school
- compare workload with classmates
- collect links for every subject
- track school terms

Students are able to create a worklog for every day of school. They can track time, subjects and their feelings. Worklog of logged student is compared with average time spent from his classmates in simple yet beautiful chart. The chart is extended with time which every student should send in school according to their credits earned from subjects.

Collecting interesting stuff for subjects is based on Octalysis element Epic meaning and calling but also on Social influence and relatedness. Students can share their links per every subject in school.

Tracking school terms is little feature that allows students to track their terms in classic calendar view.

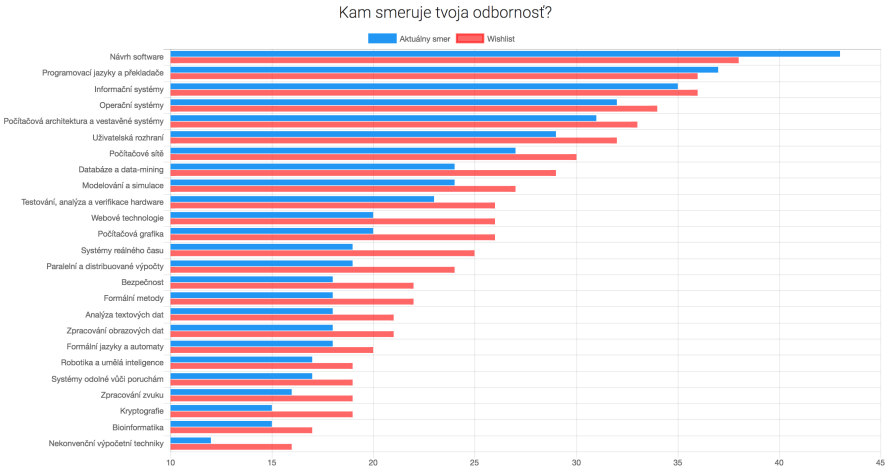

Figure 2. Graph of students journey towards IT fields

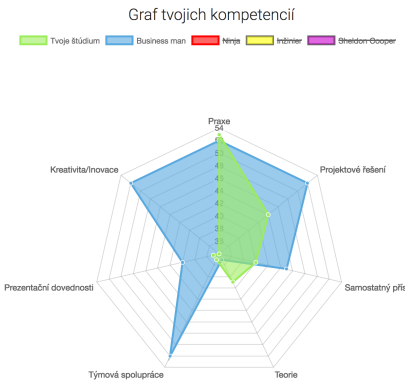

Figure 3. Chart displaying students profile in non-IT related fields

5. Results and technical talk

How you doin'? is based on PHP framework Laravel and MySQL database. The application is web-based which means that also HTML5, CSS3 and a little bit of Javascript is used. Chart.js[1] library is used for graphs and charts and it's available. Terms calendar is based on library FullCalendar[2].

Testing of an application was divided into 2 parts. The first part was testing with 3 students where I watched their first steps in the application to find minor bugs, UX troubles and to know their feelings after first usage of the application.

The second part of tests included opening the application to other students at the faculty. They discovered few bugs and gave me good suggestions how to expand my application in the future. During the tests, I also discovered that 41% of students think that it is interesting to see their journey towards an IT specialization within the school year. They also think, that visualizing their study can be motivating.

1. 75% of testers said, that tracking their workload and comparing it to others positively increase their inner motivation to study
2. 100% of testers thinks, that sharing links is a valuable feature of application.

According the tests, it looks that these 3 parts of the application should be upgraded:

1. XML subjects import
2. IT Journey calculation
3. Terms

The subjects should be imported with one click. Unfortunately, now you have to click at least 5 times. Every tester thinks, that this process need some upgrade. Students' IT journey is based only on their registered and absolved subjects. The application could also consider adding grades or points into calculation. Terms are only stored in calendar and they do not support notifications. Terms could also be shared within classmates.

6. Conclusions

How you doin'? is an application which enhances college life of FIT VUT students. It motivates them to work more on their future to become real IT professionals. It is online at http://bp.tpaulus.top.

The intrinsic motivation matters the most in the college life. Gamification principles helps to create solutions, that support and stimulate intrinsic and extrinsic motivation and these principles should be implemented in college environment by default.

[1] http://www.chartjs.org/
[2] https://fullcalendar.io/

Acknowledgements

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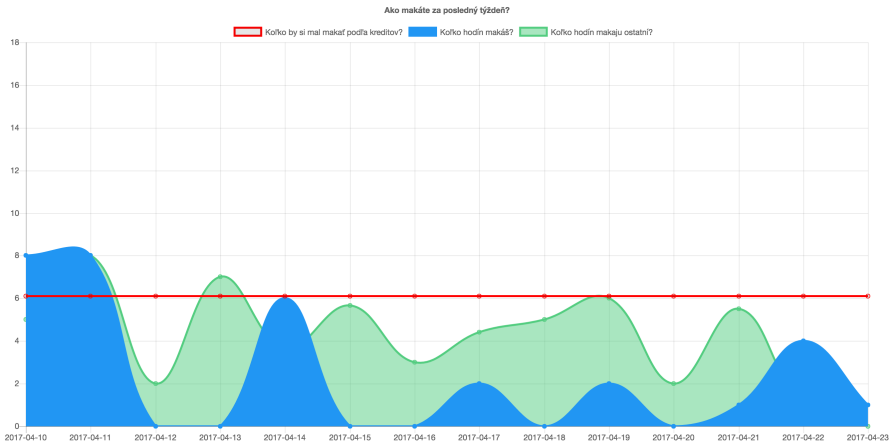

Figure 4. Worklogs chart which compares work of students

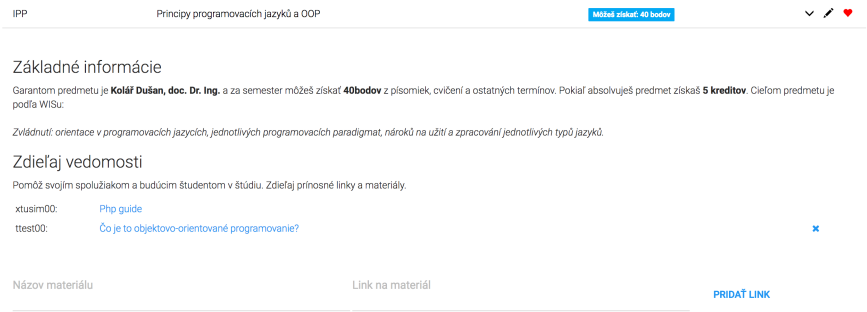

Figure 5. Single subject and links connected to the subject

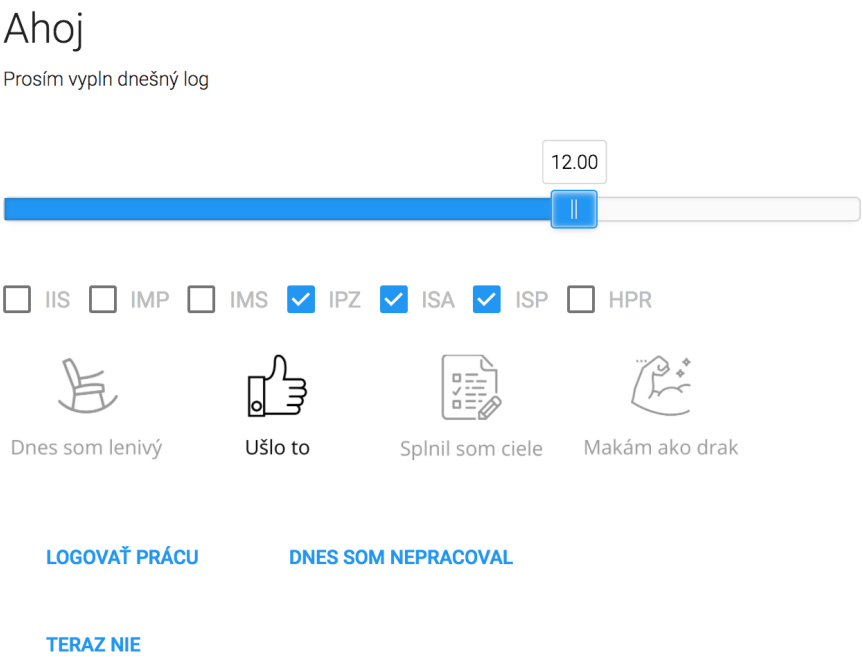

Figure 6. Log of the students daily work