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Olga Kosheleva
The University of Texas at El Paso, olgak@utep.edu

Vladik Kreinovich
The University of Texas at El Paso, vladik@utep.edu

Christian Servin
El Paso Community College, cservin@gmail.com

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MOTIVATIONS DO NOT DECREASE PROCRASTINATION, SO WHAT CAN WE DO?

Olga Kosheleva[1], Vladik Kreinovich[1], Christian Servin[2]

[1] *University of Texas at El Paso, El Paso, Texas, USA;* [2] *El Paso Community College, El Paso, Texas, USA*

[1] olgak@utep.edu, vladik@utep.edu, [2] cservin@gmail.com

Abstract Student often start working on their assignments late and, as a result, turn them in late. This procrastination makes grading more difficult. It also delays posting correct solutions that could help students understand their mistakes – and this hinders the students' progress in studying following topics. At first glance, motivation seems to be a solution to all pedagogical problems: a motivated student eagerly collaborates with the instructor to learn more. Motivation indeed increases students' knowledge, but, unfortunately, it does not decrease procrastination. So what can we do? We can institiute heavy penalties for late submissions, but this would unfairly punish struggling students who need encouragement and not punmishment. To solve this problem, we propose to institute differentiated late penalty, heavy for good students and small for struggling ones. This may sound new, but, as we show, this is, in effect, already being done by many instructors. The main difference between the usual practice and what we propose is that we propose to make such differentiated penalty clearly and precisely described in the class syllabus. This will avoid subjectivity and student misunderstandings which are unavoidable if this policy continues to be informal.

Keywords: Procrastination, Advanced students, Struggling students, Motivation, Late penalty.

FORMULATION OF THE PROBLEM

Procrastination is a big problem. Students often tends to submit their assignments at the last minute or even after the main deadline. This procrastination makes it more difficult for instructors and teaching assistants to grade these assignments: it is easier – and takes less time – to grade them in a bunch rather than having to grade late

assignments one by one.

There is another problem related to procrasticantion. Namely, the fact that many students submit their assignments late means that we cannot immediately post the correct solutions – which would help students to improve knowledge. Instead, posting of correct solutions can be done only when the last student submits the assignments. This delay in learnimg the correct result hinders the student's progress in studying the further material – whose understanding often depends on the good knowledge of the previous topics.

It is therefore desirable to decrease procrastination.

How can we decrease procrastination: a natural idea. Procrastnation is not the only problem – and usually not the major one. A much bigger problem is usually the student's lack of motivation. If a student does not understand why he or she needs to study this topic, this student will not devote that many efforts to the study of this topic, and thus, will not learn well. On the other hand, if a student clearly understands why this topic is important, he/she will actively seek this knowledge.

From this viewpoint, a natural solution to most problems related to teaching is to increase the students' motivation, to clearly explain to them why each piece of the course material is very important for their future professional career. This strategy indeed leads to more efficient learning. It is therefore reasonable to conclude that the in reased motivation will also decrease procrastination. But will it?

Unfortunately, motivation does not decrease procrastination. Contrary to seemingly natural expectations, a recent empirical study has shown that while motivation does lead to better students' knowledge, it does not decrease procrastination; see, e.g., [1]. So what can we do?

What we do in this paper. In this paper, we analyze this problem and propose a solution.

PROPOSED SOLUTION

Usual approach to solving procrastination problem. Since motivation, by itself,

does not decrease procrastination, a natural idea is to supplement it with additional administratuive measure. A usual way to decrease procrastination is to penalize the students who turn in their assignments late – by taking off point for each extra day.

Limitations of the usual approach. This usual approach seems reasonable for advanced students, who are capable of easily doing all the assigments on time. However, there are usually many students who are that advanced. This is especially true for interdisciplinary programs, where entering students come with different bakgrounds, and thus, with different degrees of preparedness for each topic. For example, in a biolinfomatics class, student with computer science background clearly have an advantage when doing computation-related assignments over students with biological background. For advanced students, taking points off for being late is usually fair, and helps to make sure that they start earlier and submit their assignments on time. However, for struggling students – who clearly need encouragement – this additional penalty only make their stuggle more diffeicult and is therefore perceived as an unfair practice.

Problem. So, a natural question is: what can we do so that advanced students be penalized heavily for not turning in their assignments on time, while struggling students will not be discouraged by a heavy punishment?

Analysis of the problem. How do we distinguish an advanced student from a struggling student? A natural way to distinguish them is by theire grade on the assignment: advanced students usually get very good grades, while struggling students poftem only get satisfactory grades.

So, we arrive at the natural solution.

Proposed solution. In view of the above analysis, a natural solution is to institute differentiated penalty: minimal penalty for students with satisfactory grade on this assignment, and heavy penalty – e.g. 10% off for each extra day – for student whose submission deserved a good or an excellent grade.

This solution actually captures existing practices. Our proposal may sound like a completely new idea – since this is not how the syllabi describe possible penalties – but it is actuall similar to what instructors do now. Indeed, even instructors who prescribe draconian penalties for late assignments are usually reluctant to apply such penalties for struggling students. The general attitude is that a student who, at the end of the class, has shown sufficient knowledge of the class material, should get a passing grade. Thus, if the quality of all the assignments is exactly at the passing threshold, then, even if these assignments were submitted late, the student would still get an overall passing grade – while, if we apply the full late penalty, the overall student's grade would drop below gthe passimg threshold, and the overall grade for the course would imply that the student failed this course.

So how do we propose differ from what is done now? Since our argument is that what we propose is already being done, what exactly is new in what we are proposing? The answer is yes, such differentiated penalties are used now, but this practice is not formalized, it is very subjective, it differs from instructor to instructor, and, what is worse, it is not usually clearly communicated to students – so students who my still pass the class get a false impression that they will fail no matter how well they perform on the remaining tests and assignments – and thus stop trying.

What we propose is to describe this differentiated late policy explicitly in the class syllabus. This will force advanced students to avoid procrastination and at the same time do not harm students who are still struggling with the class material.

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Vladik KREINOVICH

PhD, Professor

University of Texas at El Paso, El Paso, Texas, USA

Email vladik@utep.edu

Olga KOSHELEVA

PhD, Associate Professor and Co-Chair

University of Texas at El Paso, El Paso, Texas, USA

Email olgak@utep.edu

Christian Servin

PhD, Associate Professor

El Paso Community College, El Paso, Texas, USA

Email cservin@gmail.com