Vrije Universiteit Brussel

FACULTY OF PSYCHOLOGY AND EDUCATIONAL SCIENCES

Department of Educational Sciences

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Article for professionals in the field of education

The XP-based grading system

Maria Graf (0505498)

Mirela Peykova (0505071)

Tu Tran Le Thanh (0504613)

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Professor: Nadine Engels

THE XP- BASED GRADING SYSTEM as an innovative approach in assessment

I. Introduction

Are you familiar with the game "World of Warcraft" (in short WoW)? This game has been used as the foundation for an innovative assessment method, created by Christian Haschek, through which students collect eXperience Points (XPs) in order to level up their grade and to facilitate their learning. Hence, in the heart of this article lies the use of gamification as a method of assessment which makes learning and evaluation in general more transparent, accessible and available to the students by following the rules of WoW.

Problem statement

In contrast, the formative assessment provides feedback and information during the instructional process, while learning takes place. Moreover, formative assessment allows students to look back on what they have done and what they have learnt. Based on this revision, students have the opportunity to improve (Stiggins, 2005).

According to Elbow (1996) the summative assessment is not reliable and does not have a clear meaning since it does not provide the students with a feedback about their performance. Elbow (1996) indicates that summative assessment is so pervasive that we tempt to feel hopeless about making any changes. In contrast, formative assessment has gained importance throughout the past years (Specht & Sobanski, 2012). Stiggins (2005) explains that formative assessment has become so popular due to the educators' realization that once-a-year summative standardized testing is not frequent enough to affect specific day-today, week-to-week, or even month- to-month instructional decisions, moreover, due to the fact that such testing fails to provide a sufficiently detailed picture of student learning to enable teachers to identify ways to help individual students. Besides that, the role of students in learning process has gradually changed to be more student-centered which requires a higher students' responsibility for their achievement in the assessment itself (Woytek, 2005).

Objective of the research

The goal of this research is to investigate how the elements of gamification and transparency in the new XP-based grading system have an impact on the students' role and motivation in the learning process. As a result of the analysis of this innovative way of grading and all the information gathered, we would propose a tool which can encourage the implementation of the new grading system among the teachers that can be integrated in class successfully.

II. Literature Review

1. Assessment in education

1.1 Assessment definition

To start with, assessment refers to a collection of information obtained through various ways, using quantitative and qualitative inquiries, observations, and many other techniques to evaluate student learning or effectiveness of institutions (Brown, 2002). The term classroom assessment includes all assessment happening within the classroom, whether its purpose is to improve or document learning (Randel et al., 2011). Furthermore, Mikre (2010) defined that assessment is a process for obtaining information in curriculum operation in order to make decisions about student learning, curriculum and programs, and about education policy matters.

1.2 Teacher's beliefs and assessment practice

Brown (2004) defines teachers' conceptions of assessment as "teachers' understanding of the nature and purpose of how teachers' learning is examined, tested, evaluated or assessed" (p.4). He also believed that conceptions act like the framework that an individual understands, responds and interacts with a phenomenon (Brown, 2004). Moreover, Brown (2008) points out that assessment's purposes could be divided

into four main sub-catalogues regarding the teachers' conceptions:

(1) Assessment provides useful, accurate information so that appropriate changes can be made to raise the quality of teaching and learning (improvement); (2) assessment shows whether schools and teachers are making good use of the resources they have been given (school accountability); (3) assessment shows whether students are putting in the effort they are expected to in order to learn (student accountability); (4) assessment is fundamentally so flawed, inaccurate, and inappropriate that we would be better off ignoring it (irrelevance). (p. 20)

The teaching methods we choose need to engage students with activities that are likely to require performing in accordance with the stated curriculum objectives (Biggs, 1996). Pajares (1992) poses the idea about a strong relationship between teachers' educational beliefs and their planning, instructional decisions, and classroom practices, although neither the nature of educational belief acquisition, nor the link to student outcomes has yet been explored carefully (Pajares, 1992). Additionally, Brown (2014) stated that what teachers believe about assessment matters as far as the way they implement, interpret and respond to evaluative practices. Thompson (1984) believes that "teachers' conceptions (their beliefs, views, and preferences) about the subject matter and its teaching play an important role in effectiveness as the primary mediators between the subject and the learners" (p. 106). Furthermore, teachers' views and attitudes with regard to assessment are affected by their cultural beliefs (Pishghadam, Adamson, Sadafian & Kan, 2013).

Clearly, there is a strong connection between a teacher's thinking, beliefs and actions. To illustrate this point, this has been referred to Stiggins (2002)'s article about the crisis of assessment and assessment for learning. When talking about the assessment system in the US, Stiggins (2002) states that due to the more frequent and more intense standardized testing, teachers are unable to gather information on student achievement. Moreover, how teachers think about assessment is salient because it has a great influence on the way how teachers teach and it, consequently, will affect student learning achievement. Bliem and Davinroy (1997) believe that these teachers' existing beliefs about assessment acted as an interpretive lens through which they viewed information about new classroom practices. These lens can either facilitate or hinder teachers' efforts since they alter their actions in the classroom depending on overlappings of their

existing beliefs with the proposed changes in their practices (Bliem & Davinroy, 1997).

Besides that, according to Brown (2008) assessment not only monitors school, teacher and student effectiveness, but it also helps to identify the need for a change. Moreover, assessment brings curriculum, learning and teaching together since teachers can teach well based on their understanding of curriculum; they can teach based on the basis of their personal understanding of how learning occurs; they can teach effectively because of their strong understanding of multiple pedagogies (Brown, 2008). Information gained from assessment allows teachers to reflect on and make improvements to their practice (DuCloux, 2009).

1.3 Changes in assessment in classroom

It is widely acknowledged that assessment is an integrated part in the learning outcome and student achievement. It is considered as one of the main determinants for the success of students' performance in class because students engage with subject matter based on their expectations about how their achievement will be evaluated (Lombardi, 2008). In addition, the assessment experience should be used as an instructional intervention to maximize student achievement (Arter, 2009).

A. Main characteristics of assessment for learning

First of all, according to Biggs (2002) assessment shares learning objectives with students. Sharing learning goals with students will enable them to get involved in their progress because it gives them clear success criteria that relates them to the learning objectives. Besides, a good assessment will show students where they are and what further learning they need to achieve since it allows students to see how they are progressing, thus building confidence and self-esteem and encourages pupils to explain their thinking (Biggs, 2002). Moreover, assessment provides feedback which leads to students recognising their next steps and how to follow them (Stiggins, 2005). Another characteristic of assessment for learning according to Spiller (2012) is the self-assessment and peer-assessment. Assessment create motivation for student to be self - regulated, constructive in learning. More specifically, students can take responsibility for some of their own progression. Students can ask themselves what am I learning and how can I do it better. Moreover, they also learn how to cooperate with other students for getting the learning targets (Spiller, 2012).

B. Authentic assessment in learning

Recently, there has been a reform in education in the way that connects the constructive alignment with the students' learning (Biggs, 2002). Traditional assessments have contributed to students' pursuits of grades than pursuits of learning and it is necessary to broaden the system to include alternative assessments that provide an opportunity for students to make conceptual connections towards their pursuit of learning (Berenson & Carter, 1995; DuCloux, 2009). Consequently, the need for alignment between the goals of education, learning and teaching activities and assessment is increasing. As a result, authenticity plays an important element in the new modes of assessment (Gulikers, Bastiaens & Kirschers, 2004).

The term “authentic assessment” can be understood as an assessment which requires students to use the same competences of knowledge, skills and attitudes that need to be applied in the criterion situation in professional life skills (Gulikers et al., 2004). In assessing the problem-based learning, authentic assessment seems as a more appropriate means to assess learning compared to traditional assessments, such as norm-reference and standardised testing that assess recall of factual content knowledge (Torrance, 1995; Tai & Yuen, 2011)

The aim of assessment thus is putting the achievement of high-order thinking skills at the main position, whilst the acquisition of factual knowledge and basic skills fade from the spotlight (Gulikers et al., 2004). In the study about developing the authentic assessment toolbox to enhance student learning, Mueller (2005) described authentic assessment as a form of assessment in which students are asked to perform real-world tasks that demonstrate meaningful application of essential knowledge and skills.

It is believed that a more authentic assessment process that would also enhance personal development stimulate practical ability, and nurture critical and creative thinking skills as well as assisting students to take active responsibility in their own learning (Chen & Hoshower, 2003; Shing & Fai, 2008). After the study about authentic assessment strategies in a task-based learning, Tai and Yuen (2011) came to the conclusion that these authentic assessment strategies were instilled to promote a more student-centred approach to problem-based learning. Students played a larger role in learning where each of them was responsible for their own learning. Tai and Yuen (2011) also found that the authentic assessment strategies have shown to benefit the students. Through these assessments, students’ problem solving skills related to real-world issues and high-level understanding were assessed and evaluated (Tai & Yuen, 2011).

Moreover, it is worth noticing that current educational goals focus more on the development of competent students and future employees than on a single knowledge acquisition (Gulikers et al., 2004).

C. Roles of learners in assessment process

According to Woytek (2005) the role of students in learning process has gradually changed and a more student-centered approach has emerged requiring students’ autonomy. With the ideas that learners should be a part of assessment process, teachers encourage students to create a sense of internal responsibility for their achievement (Woytek, 2005).

According to Stiggins (2008) teachers are not the only responsibles who can assess students. The students can assess themselves as well since they rely on their interpretation of their own results. Moreover, when students become the part of assessment process, they can build within themselves the sense of success because they believe that success is within reach for them if they try (Stiggins, 2008).

This calls for the consistent application of principles and practices of classroom assessment for learning (Stiggins, 2008; Sadler, 1989). Teachers should help students understand what a good work is

from the very beginning of the learning, they should help students to learn how self-assess by comparing their work to that standard of excellence, and how to close the gap between the two (Stiggins, 2008; Sadler, 1989).

D. Feedback strategies

Besides that, in order to know what comes next in the learning, one must know where the student is now on the learning progression. Classroom assessments must provide that information, not once a year or every few weeks, but continuously. Only then can it serve truly formative purposes (Stiggins, 2008).

Stiggins (2008) also stated that the time has come to stop believing that report card grades and test scores represent effective communication capable of supporting student learning. Effective communication systems rely on descriptive feedback to support learning balanced with judgmental feedback to verify it.

Moreover, Stiggins (2002) strongly believed that we must continue to refine them by reducing essential expectations and adding clarity where needed. In addition, they must be ordered in learning progressions to unfold in each subject over time within and across grade levels in a manner that supports learning (Stiggins, 2002).

2. The importance of student motivation in education

2.1 Motivation and self-efficacy

Nichols (2006) suggests a more learner-centered classroom, in which students actively engage in their learning by self-regulation and self-motivation. This enhancement of active responsibility in class results in higher intrinsic student motivation. Bandura (as cited in Nichols, 2006) underlines a positive correlation between self-efficacy and motivation, yet self-efficacy needs to be connected to an active student role in class like self-regulation and/or self-motivation.

In Oman, a research about the interplay of teacher practices and student perceptions demonstrated a close interaction between student academic self-efficacy beliefs and students' expectation of the assessment task. Alkaharusi, Aldhafri, Alnabhani and Alkalbani (2014) found out that students' perceptions as well as intended learning, authenticity, transparency and diversity influenced students' self-efficacy significantly. Authenticity describes the alignment of students' interest to their personal life, whilst transparency stands for the students' knowledge about assessment implementation and purpose and diversity represents the pupil's cognition of task requirements. Moreover, task value and self-efficacy are enhanced if a higher level of authenticity and transparency is given. Thinking about assessment, Alkaharusi et al. (2014) determined that students who are well-informed about assessments tasks are more motivated. This study has thus shown that several little pieces contribute to the big picture.

2.2 Educational strategies and motivation

Next to the components of self-efficacy, Abrami, Apollonia and Rosenfield (2007) state that the teacher's role as a pedagogical expert has a determining impact on students' motivation. They define effective teaching as a positive change in students' mind achieved through appropriate teacher's

activities (Abrami et al., 2007). Analysing student feedback on teachers' instruction, Abrami et al. (2007) distinguish between two main elements of instruction, namely (a) the product of a lesson and (b) the process, i.e. the implementation of a planned course. The first element includes the cognitive changes which students undergo when learning something new, whilst the latter one focuses more on the teacher's activities, such as the preparation and the implementation of a lesson. After doing research, they suggest merging product and process into a holistic approach, including instructor activities which occur both before (preparatory) and during (delivery) teaching which produce positive changes in students in the cognitive, affective, and occasionally the psychomotor fields (Abrami et al., 2007).

2.3 Student-teacher relationship and motivation

Meyer, McClure, Weir, Walkey and McKenzie (2009) found out that students performance depends on the teacher's concern about student achievement, i.e. students motivation increased when pupils feel the teacher's concern about student' work done. Nichols (2006) also sees a positive cohesion between the student-teacher relationship and grades.

In Asia, the student-teacher relationship has been evolving the last 15 years, as questioning a teacher and student creativity did not belong to principle of instruction 20 years ago. Research has underlined the importance of feeling fairly treated. If student for example earned good points easily, they felt treated unfairly, which led to a negative teacher evaluation (Ting, 2000).

Overall, a good teacher-student relationship can have positive overall effects, yet it might be difficult to implement in all schools (Nichols, 2006).

2.4 Transparency and student motivation

Transparency (also clarity) plays a crucial role in schools (Hativa, 1998). Based on a research about students' perception of instruction, Abrami et al. (2007) found out that clarity is a module of the most important factors regarding instructional effectiveness, which in turn positively influences students' motivation to learn, student's analytic ability, a change in knowledge and the academic self-concept. Hativa's research on the lack of clarity in university teaching (1998) shows once more that clarity leads to student motivation and student satisfaction. The analysis of research underlined the importance of clarity - among 22 instructional dimensions, transparency and understandability had the highest importance level measured by all indicators around instruction.

Student motivation increases if teachers follow certain goals. Svennberg, Meckbach and Redelius (2014) found why transparency sometimes lacks. They found a mismatch between teachers' verbalised criteria and the interplay of transparency, validity and reliability.

Abrami et al. (2007) compared different types of instruction. In classes where teachers prefer frontal instruction to more open courses, clarity is more important for students. Hativa (1998) found out that students find it important how a teacher sees them.

The picture an educator thus has in mind has an impact on transparency.

Transparency is not only an important aspect during school career, it has also an important impact on employees' satisfaction. Talking about companies, Van Herpen, Van Praag, and Cools (2003) found that intrinsic motivation is significantly influenced by the perception of transparency.

3. The gamification as the innovative approach in education and its impact

3.1. Introduction to the theoretical concept of gamification

In the beginning of the 21st century a new generation (often referred as *Generation Z*) has emerged characterized by the constant use of Internet and social media. As a result, a new learning theory has taken the stage, called "gamification", which has

the potential to respond to the characteristics of Generation Z more properly in the learning process by offering a theoretical basis that can result in a more effective learning and increased learners' motivation (Bíró, 2014).

Gamification is "the use of game mechanics, dynamics and frameworks to promote desired behaviours" (Lee & Hammer, 2011, p. 1). Bíró (2014) states that gamification has more common elements with the behaviourist learning theory in terms of superiority of positive reinforcements, small tasks step-by-step, immediate feedback and progressive challenges. Furthermore, there are also a few common elements between gamification and the connectivist approach, such as the effective use of social networks, the community-based approach of evaluation, and the reward system. However, the gamification stands out with several specific elements different from the rest of the theories (Bíró, 2014).

First of all, Bíró (2014) indicates that gamification uses the social networks as the basis from which the strategy of community-based motivation and feedback process can be used in order to be able to raise both the level of engagement and motivation in the learning process for each participating individual.

Second, gamification theory looks at the learning process from two different points of view at the same time. On the one hand, gamification uses individual perspective to study and offer the best learning path to each of the learners based on their needs and qualities. On the other hand, the performance-evaluation and the feedback are strongly community-based.

Third, gamification views the learner as one of the most important actors in the learning process, as learners have to choose from the learning routes and compete against each other to reach higher levels or get more badges based on their motivation which

could be either intrinsic or extrinsic. The roles of the teachers are only to establish the learning environment and the diverse learning paths, and to foster higher level of engagement in the learning process by influencing the motivation of the learners to move from extrinsic to intrinsic (Bíró, 2014).

3.2 Psychological impacts of gamification in education

According to Lee and Hammer (2011) gamification has a significant psychological impact in the cognitive, emotional and social area. As far as the cognitive domain is concerned, the ability to experiment and improve problem solving skills can be enhanced through gamification. This is due to the fact that games guide players through the process of accomplishing mastery in certain skills and this can be beneficial when applied to educational principles. The application of game-like principles to grading systems keeps students engaged and responsive to challenges that are appropriate to their skill level. If implemented correctly, the gamification of grades can offer multiple routes to success by allowing students to choose their own sub-goals within a larger learning task so arguably this leaves some room for creativity and self-governing learning (Lee & Hammer, 2011).

Moreover, Lee and Hammer (2011) argue that gamification can have emotional benefits to learners because games provide players with a number of different emotions and provide many positive emotional experiences. More importantly, games assist players in persevering through the negative emotional experiences associated with failure because the structure of gaming means that a player must fail repeatedly before they learn what works in order to succeed (Lee & Hammer, 2011).

Lee and Hammer (2011) state that gamification could potentially offer social benefits to learners as well because games allow players to try new identities and roles. Games allow players to take on social roles that they may not feel comfortable expressing in a typical classroom setting. The game-like interaction in education can provide students with social credibility and recognition amongst peers for their academic achievements. A well-designed grading system that uses gaming allows players/students to adopt meaningful roles and recognizable identities that traditional grading systems cannot employ (Lee & Hammer, 2011).

3.3 Gamification and assessment

According to Bunchball (2010) there are constructs of rules and techniques, called game mechanics, which are the building blocks for gamifying a website or application, and which can be employed in gamification: (1) points; (2) levels; (3) challenges, trophies, badges and achievements; and (4) leaderboards.

To begin with, points can be used to reward users taking into consideration multiple dimensions, and different categories of points can be used to drive different behaviours through experience points (XP), skill points (score, rank) and influence points (rating, reputation). Furthermore, levels are the systems which reward the players by accumulating points and thus increasing players' progress to higher levels. In addition, the challenges, trophies, badges and

achievements are the four mechanics which give the players missions to accomplish and then reward them for doing so. Thus, they are the visible recognition of having reached new levels or completed challenges. And the last but not least, the leaderboard is the high-score table used to track and display desired actions, using competition to drive valuable behavior (Bunchball, 2010).

In addition to the game mechanics, there are several game dynamics which influence the human behaviour (Bunchball, 2010). First of all, human beings are motivated by receiving rewards and as a result of that, the primary reward mechanism in gamification is earning points, leveling-up, and by completing achievements. Second, most humans need to engage themselves in activities to gain status, prestige and esteem. All elements of game mechanics drive these dynamics, with leveling-up, being one of the primary motivators Third, since a lot of people are motivated by the need to achieve, to accomplish something difficult through prolonged and repeated efforts, to work towards goals, and to win, the game provides an achievement dynamic. Furthermore, many people need opportunities to express their autonomy and originality. The use of a personal avatar is a common way for players to create their own identity, whether by earned rewards, received gifts, or bought directly with real currency. In addition, individuals can also be motivated by competition. Higher levels of performance can be achieved when a competitive environment is established and the winner rewarded. And the last but not least, gift giving (or altruism) is a strong motivator fosters establishing relationships between the players. In conclusion, in order to successfully make use of gamification, it is crucial to understand why and how game dynamics and game mechanics succeed in positively influencing people (Bunchball, 2010).

4. Gamification as a new effective assessment in learning and teaching

Using gamification as a formative assessment method in learning and teaching has changed dramatically the definition of assessment that used to be. According to Moore (2013) gamification is not just playing games, it is about positive emotion and rewarded. He also added that developing skills, earning points and building abilities in the act of game playing is customary, but mastery of those skills and moving towards the culmination of the games axis is also deeply rewarding for the game player (Moore, 2013).

These ideas about gamification are consistent with the main characteristics of assessment for learning. Like formative assessment, gamification focuses on the process of learning rather than the end result by using assessment to inform subsequent lessons and separating assessment from grades whenever possible. Moreover, gamification of learning provides rapid feedback. According to Stott and Neustaedter (2012) feedback is a critical element in learning. The more frequent and targeted the feedback is, the more learning occurs. Rapid feedback in gamification in learning has a direct link to formative

assessment which helps both teachers and students to know on time what they need to change in order to have better results (Stott & Neustaedter, 2012).

With regard to gamification, students become the center of all learning activities (Stott & Neustaedter, 2012). Gamification in the classroom can lead to an increased student engagement and success. More importantly, with strong motivation, students will be able to be self-regulated and self-assessed in learning. Using gamification encourages students themselves to explore the content, to know the targets they need to achieve, to take the chances to make decisions, and to be exposed to realistic consequences for making a wrong or poor decision. In line with the formative assessment model, this means incorporating student assessment that highlights useful lessons taught through the experience while preventing unsuitable marks or grades (Stott & Neustaedter, 2012).

Furthermore, according to Moore (2013) another important aspect of gamification is the inclusion of the strong social component. Students learn how to communicate with their peers and their teachers. By communicating and playing with each other, they are using peer review, assessing challenges, interactivity, choices and cognitive behaviors to achieve tasks together (Moore, 2013

III. Interview results on Haschek's XP-based grading system

1. Who is Christian Haschek?

Christian Haschek is a young and ambitious Austrian entrepreneur and teacher. He finished his school career only a few years ago, namely in 2010. He himself experienced the teaching routines of his older professors as "outdated", as the advantages of the modern technology in education were disregarded. He was inspired by a teacher who used a certain point system which made the teacher's grading system appear so fresh by simply providing transparency to the students - the teacher steadily published an overview showing how many points pupils need in

order to receive a better grade. Capturing this inspiring moment, Haschek created something new, namely a unique, innovative grading system based on WoW, accompanied by his custom designed e-learning platform called Socialcube. The Socialcube is a free social, fun and modern version of Moodle which everybody can use. It has been developed into a social networking platform for students and teachers in which schools can upload their lesson plans. The e-learning platform furthermore provides a grading system to the teachers, which enhances students' motivation, as psychologists and scientists state, since it is based on elements of gamification.

"In the end of a school year almost no student can remember how many homework they did or didn't do and how they were doing in a specific sections in comparison to others. The raw and emotionless data can tell them what they did well and where they were not so good, much better than any report card or assessment system can"

(Haschek, personal communication, March 18, 2015)

2. Rules of the game

The main idea is that students are not rewarded any longer with the stiff Austrian grades from 1-5, in which 1 represents the highest mark. Instead, students gain eXperience points (XPs), for every positive input they contribute. The "+" and "-", which usually evaluate a student's collaboration in class during the academic year, are now replaced by XPs. The educator adds points throughout the lesson in the online Socialcube platform, accompanied by the teacher's reasons for handing out these points. All students start at the same springboard and can only receive points, which cannot disappear. Using this method of grading, youngsters can mainly improve their personal performance. The teacher reports all the XPs given in his custom designed e-learning platform during the class given, which are then automatically translated in the traditional letter grade (1-5).

Thus, this has resulted in a win-win situation. On the one hand, the students benefit from the clear and transparent grading system by gaining insight on their own progress in class (qualitatively and quantitatively) whenever they wish, and by obtaining information on how individual achievements relate to their overall grade as the term progresses. Haschek comments that "grades are now something in which students are actively involved in producing, not something that a teacher rolls the dice on at the end of the semester". On the other hand, there is no need for the teachers to assign marks after class and to struggle about grading at the end of the year.

3. Implementation

At the beginning of each school year, Haschek introduces from four to six topics to the students. After this overview, the students may vote which one they like mostly. Based on this election, each topic, i.e. section, receives a certain XP value. Bigger topics are treated as "500 XP sections", whilst smaller ones only receive half. Thus, since the students have an impact on future content, they are much more committed to the subject. As this pilot project is currently used for 14-18 year old students whose attention span might be shorter than a two-hour lesson, the XPs sometimes is also transformed into a real eye-opener. Even students who fall asleep during the lesson, might be woken up by perceiving one specific sentences, "For 15 XP, who can tell me..?" As

Haschek states, “this sentences sometimes appears to be the superweapon in class.”

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> *“Since I did not use the traditional grading system as a teacher, I just walked into the classroom, introduced myself and told them about the grading system and that it works like a RPG (Role Playing Game) with XP. The first class actually applauded when I introduced the system to them. They were really excited.“*
> *(Haschek, personal communication, March 18, 2015)*

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Next to the grading, XPs can serve many other topics of lifelong learning. Not only do students control their own learning behaviour in class, they also help each other more. Since “finding information on one’s own” deserves less points than “helping someone else”, students want to work together. XPs can thus also be “manipulated” to shape the student’s behaviour, too. However, real difficulties regarding respect, Haschek never experienced as he is only a couple of years older than the students sitting in class. As he said, they see him more like a bigger brother or friend than a teacher.

Thanks to the high transparency, students are able to compare XPs on the online platform socialcube. This sometimes even leads to real student-XP-races. Also from the governmental side, no assertion was needed, since the Socialcube, as the e-learning platform is called, translates XPs automatically in the usual standard grades from very good to insufficient.

4. Haschek’s view on assessment

Haschek underlines the importance of formative assessment, even though the Austrian grading system puts its focus on both. Moreover, Haschek criticizes countries which are too product-focused. Avoiding this, the XP-based grading system provides a more detailed picture of a student’s performance using grading scores. Also, pupils gain insight in their personal achievement by looking on the grading sections on the online platform Socialcube Lite. When thinking about the Socialcube Lite in use, Haschek mentions that ambitious teachers know the difficulties students are having. Therefore, the Socialcube lite helps visualizing a student’s performance by showing graphs on their overall performance. These graphs help teachers to react quickly when students are having problems.

A last point discussed are the report cards, which students receive at the end of each term.

Traditionally, each subject is listed on this card, accompanied by a letter grade from 1-5. Haschek introduces here his need for a change.

In his eyes, number grades should be replaced by achievements for each grading section a student passed during an academic year. He further explains "instead of listing subjects and the grades of the subjects I'd give them a report card which says "student can calculate triangle vectors, student can program in C++, student can...." Yet, in Haschek's opinion, these report cards, handed out twice a year, do not influence the learning behaviour of students, as only 5 out of 200 *ace* report cards. Instead, he mentions the following:

> *"For the majority I think the grades on report cards are demotivating and vacuous. Many students I know think that report cards tell them about who they are. Bad student's sometimes think that they're worse humans than better students. Which is not the case at all. "*
>
> *(Haschek, personal communication, March 18, 2015)*

5. Current results

After creating this innovative grading method after graduating in 2010, as Haschek says, he became a teacher who "reality checks" his own XP-based grading system. The highest critic he ever received was, as he stated, the feedback of an A-student saying, "I wouldn't mind if your system would be used in other subjects, but I don't think it's necessary".

Using this method of teaching also showed how big the impact on student's motivation is. The highest achieving students in his course are the ones (almost) failing in other subjects. Talking about his course, no student who regularly attended class ever needed to double the subject.

In 2014, media became aware of Haschek's innovative grading system. From teachers, students and simply fascinated people all over the world he received phone calls, emails and posts sharing their fascination of this unique method. After becoming famous, he started developing his online grading platform "Socialcube" which he himself designed three years ago. After three weeks of adjustment, he offered "Socialcube LITE" which is now offered for free online and is already used by more than a thousand teachers and students on a daily base.

6. Future prospects

The ideal way of educating people, in Haschek's eyes, would be to allow students to choose their own subjects, besides fundamental compulsory subjects. All the subjects attended would be rated with the XP system, forgetting about the traditional 1-5 grading. If it would happen that students are not able to fulfill the demanded needs, they might repeat the course at any time. At the year's end, student would receive a list of academic achievements completed instead of grades rating a subject. This might also have a positive impact on companies, since they have a better insight of an individual's qualification reading about students abilities instead of number grades next to a subject.

FOR MORE INFORMATION

https://www.blog.haschek.at/xp-based-grading-system

IV. Questionnaire results on students' perceptions about the XP-grading system

A short online questionnaire comprising eleven questions was handed in to Haschek's students, whereof nine responded. Figure 1 shows a comparison between the satisfaction with the "traditional" grading system in Austria and Haschek's XP-based grading system.

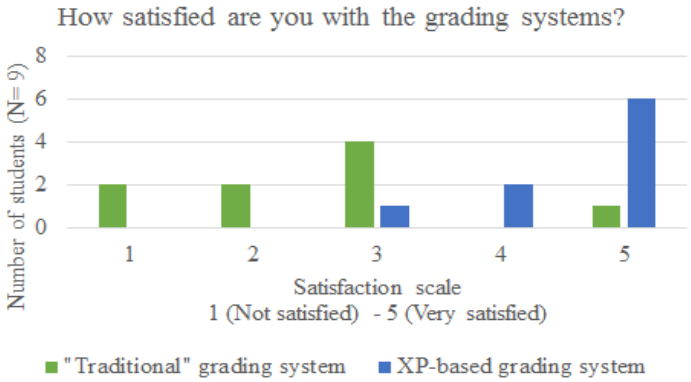


Fig. 1 Satisfaction of the students with the grading systems

In general, the students are not fully satisfied with the Austrian traditional way of grading, which is confirmed by the students' overall positive satisfaction regarding the innovative grading system of their teacher Christian Haschek. The students' preference for the new XP-based grading system is significant and stands as another confirmation of their satisfaction for the XP-based grading system (Fig. 2).

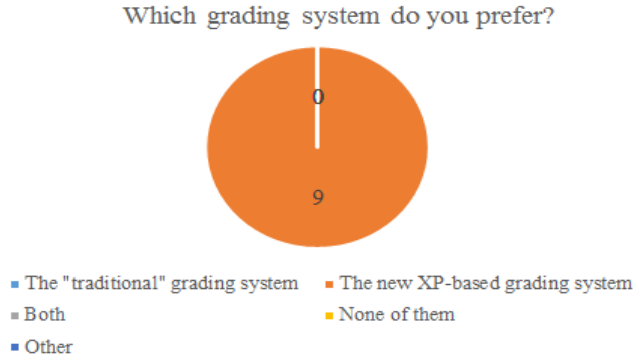


Fig. 2 Preferences for a grading system

Moreover, all students classify the new method of assessment as more motivating than the traditional one (Fig. 3).

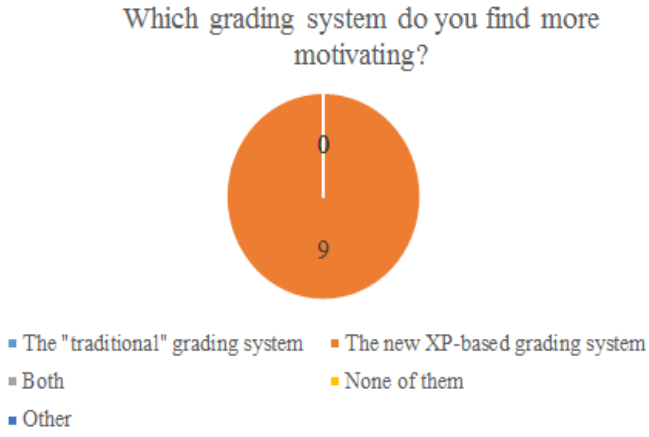


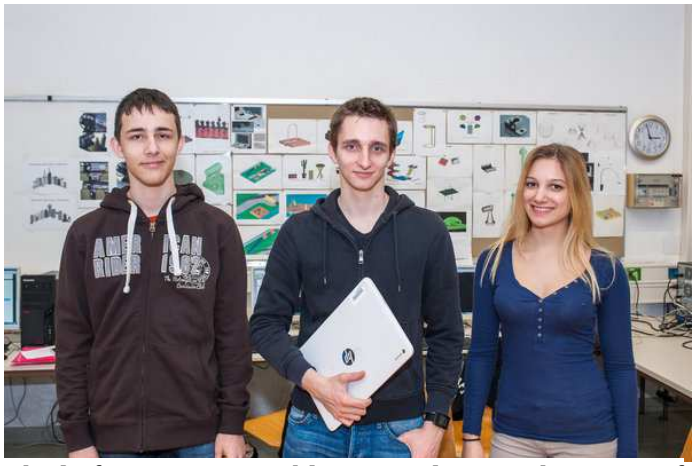
Fig. 3 Motivation with the grading systems

When amplifying on the impact of the XP-based grading system on the reasons for students' preference and motivation, the following reasons were outlined: its transparency, the instant reward of the experience points for the completed tasks and the fact that the experience points cannot be lost once they have been earned.

Talking about the importance of student motivation in school, the question is which factors enhance their motivation in school. Figure 4 shows that the active participation in class (6), the good relationship to the teacher (6) and the teacher's feedback on students' progress (6) hold the highest positions in the students' choices.

When using the XP- based grading system, the majority of students responded that they do not face any difficulties (8) and that they strongly agree that it is easy to understand the purpose of the tasks assigned by the teacher (5). Moreover, the majority (7) confirms that both completing a task assigned by the teacher as well as receiving more experience points are of high importance to them when using the XP-based grading system.

Since the students highlights a preference for the new XP-grading system by comparison to the the "traditional" one, it was interesting to understand more about the future students' perception towards the XP-based grading system. Therefore, the participants were



asked if it is conceivable to implement this way of grading in other courses, by eliminating the traditional grades from 1-5. The answers were significant: eight students could imagine implementing this way of grading in the other courses, whilst only one was not sure about it.

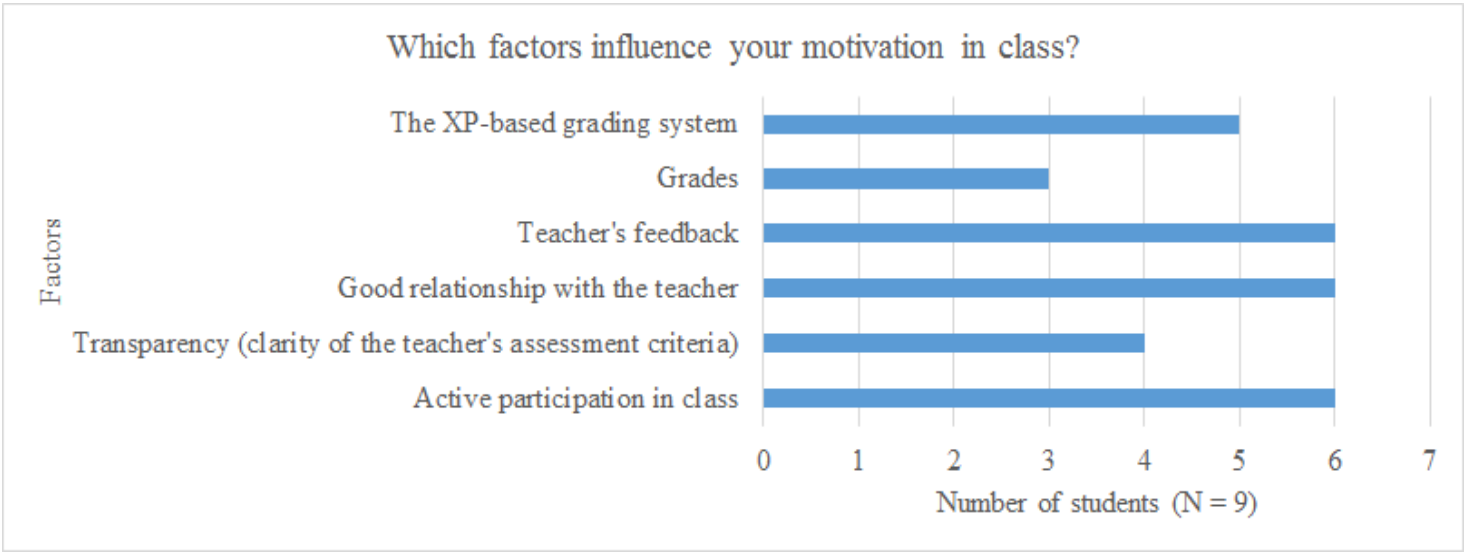


Fig. 4 Factors which influence motivation in class

V. Discussion

1. Strengths

What makes the new XP-based assessment method successful are the immediate feedback and transparency which allow the students to see their achievements by checking the grading sections on the online platform Socialcube Lite, and to compare themselves to the rest of the class by having a graph for every grading section. According to Stiggins (2005) good assessment shows the students' progress and achievements in learning, and provides them with feedback concerning which further actions they need to achieve so that they can meet the necessary steps.

In addition to this, the XP grading system provides the teachers with immediate data and graphs concerning the overall performance of a student and, as a result of that, the students receive immediate feedback, which informs them on time where they are and how much efforts they need to achieve the required levels. According to Stott and Neustaedter (2012) feedback is a critical element in learning because the more frequent and targeted the feedback is, the more learning occurs.

Besides that, one of the basic elements of Haschek's grading system is that students are the center of a task-based learning environment which allows them to build a sense of belonging and motivation for learning. According to Nichols (2006) the more learner-centered classroom where the students actively engage in their learning by self-regulation and self-motivation is of high importance because this enhancement of active responsibility in class results in higher intrinsic student motivation.

2. Limitations

Although the implementation of the XP-based grading system has yielded a number of significant positive results, there are a few noted limitation in the implementation of this method.

Firstly, although Haschek's students feel interested and motivated to learn because of this new grading system, it is difficult to evaluate whether it has the same influences on other students on a larger scale. As a result, it is necessary to have more careful investigation and research on the effects of XP-based grading system on the students' perceptions outside Haschek's classroom.

Secondly, student engagement in learning when using gamification is based a lot on the extrinsic motivation (i.e. students work hard to get XP, to receive rewards). Thus, students will indeed work harder for the XP, and ultimately this will detract from

students' intrinsic motivation to learn. The fundamental problem in a student engagement derives from weak intrinsic motivation to study and learn as a result of the use of extrinsic rewards in the field like education (Deci, Koestner & Ryan, 2001; Jiang, 2011).

Thirdly, a presumably limitation is the teachers' and students' digital literacy. In comparison to Haschek's skills in computer technology, the other teachers who would like to use this new assessment method might have difficulties if they lack skills and competencies related to the use of digital technology. Regarding the students, despite the fact that each generation of students is becoming more digitally literate, the lack of skills for some of the students might become a hindrance in the effectiveness of this new assessment.

As a result, a number of questions remain: How to implement this grading system successfully in other courses, such as, for instance, Mathematics or Languages. Is it feasible for a teacher to add experience points steadily throughout a lesson? How do non-digitally literate teachers perceive such a digitized instrument? And, much more importantly, do also students who do not study Computer technology accept this way of grading?

VI. Tool

After media successfully introduced Haschek's XP-grading system in 2014, the teachers' ambition around the globe who wanted to change something about their grading methods has increased. Haschek reports that not only professionals in the field of education, also youngsters and also deeply impressed people contacted him in order to know more about his methods or merely to congratulate him.

The tool provided hereinafter consists of an elaborated workshop for school change agents in Flanders, who are welcomed for the purpose of a professional development (Table 1). In other words, schools who are interested in Haschek's way of assessment are invited to send a school's responsible, i.e. the change agent, who receives adjusted training. The aim of this first workshop is an active professional development at school, where the change agent has the important function as a reference person for other teachers. In other words, the change agent informs colleagues at school about the new method, shows them examples, answers questions etc.

Furthermore, the workshop's content involves first and foremost the teachers' beliefs. A first step is thus to reflect upon strategies for implementation, to discuss the pros and cons and possibilities of adjustment. Change agents will thus approach Haschek's XP-based grading system step-by-step, starting by reflecting on its own strengths and

weaknesses and continuing by getting to know more about the idea of Haschek, including the e-learning platform Socialcube Lite.

Once the workshop is completed, the goal is that change agents will help incorporating the XP-based system into teachers' routine. As the professional development is a continuous process, further workshops for change agents can be offered to guarantee extended and intensive programs. During the seminar, change agents will collaborate with external colleagues, exchanging each other's experiences, giving advice, such as examples of good practices.

Table 1. Workshop Training for change agents

Topic	Workshop training in the use and implementation of the XP-based grading system	
Participants	For the change agents in Flanders	
Vision	Gradual progression from resistance to change towards awareness of the need for a change on the basis of a continuous reflection and collaborative construction of meaning and knowledge.	
	Goals and Objectives	**Instruments**
Objective 1	❖ Development of awareness of beliefs and decreasing possible resistance	Reflection on the emotional resistance to change (discussion of the fable)
Objective 2	❖ Develop a disposition to change of assessment and new visions of a good assessment	Reflection on the different types of assessment and what a good assessment is, and reaching conclusions in a group collaboration
Objective 3	❖ Develop a new knowledge and understanding of the XP-based grading system	Presentation of the new grading system combined with a practical task for the participants; brainstorming in groups the pros and cons of the XP-based grading system vs. the traditional grading system
Objective 4	❖ Design steps/a programme towards the implementation of the XP-based grading system in the school/classroom	Reflection on the obstacles and finding solutions to these obstacles in order to be set a favourable environment for developing a programme for the implementation of the new grading system
Objective 5	❖ Development of a professional learning community	The main objective of the workshop training is to collect all the change agents and create a professional learning community who will reach a professional conclusion on the basis of reflection and collaborative work

	Content	Timetable
Agenda	**1. "A Little Fable" by Franz Kafka -** an open short discussion of the need for a change	**10:00 - 10:10**
	2. Introduction to the topic of assessment: ➢ Brainstorming in small groups the different types of grading systems ➢ Brainstorming what a good assessment is	**10:10 - 11:10** (30 minutes) (30 minutes)
	3. Introduction to Haschek's XP-based grading system: ➢ Discussing the participants' primary ideas about the new XP-based grading system ➢ Presentation of Christian Haschek's XP-grading system and the students' perceptions ➢ Practical task with the online platform Socialcube LITE	**11:10 - 12:00** (5 minutes) (20 minutes) (25 minutes)
	Break	**12:00 - 13:30**
	4. Evaluation of the XP-based grading system: ➢ Pros and cons of the traditional grading system (brainstorming in 2 small groups) ➢ Pros and cons of the new XP-based grading system (brainstorming in 2 small groups) ➢ Drawing conclusions about the XP-based grading system	**13:30 - 14:40** (30 minutes) (30 minutes) (10 minutes)
	5. Implementation of the XP-based grading system: ➢ Discussing the obstacles in implementing the new grading system (in small groups) ➢ Brainstorming solutions to the obstacles ➢ designing a repertoire of steps towards the implementation of the XP-based grading system in a classroom/ in a school (2 groups)	**14:40 - 16:00** (30 minutes) (30 minutes) (40 minutes)

VII. Conclusion

In order to achieve success on a micro level, a positive interplay of several key components must be guaranteed. First of all, assessment implementation plays a major role. Once assessment is introduced in a way that the students are installed in an ambitious classroom setting and all the participants involved in the teaching and learning process feel satisfied, school life reaches success. This goal can be reached with an alignment between the teacher's perceptions and objectives, and the right type of assessment, placing formative assessment in the focus of attention. Furthermore, how students perceive school routines and their individual role in class and the assessment itself influences their intrinsic motivation. As a result, it is of high importance that educators stay "up-to-date" with the innovative teaching practices, such as the gamification as an innovative method of assessment discussed in our research. Gamification plays a significant role, as technology and the virtual world gain more and more importance in the students' life. Students' positive attitude towards online elements in class creates here a win-win situation by developing a teacher's practices and by positively influencing a student's participation.

The results from our research confirm that the new XP-based grading system in general has a positive impact on Haschek's students' motivation, participation and achievement. However, as motivation is an important factor for students' involvement and success in learning, it is necessary to distinguish between the intrinsic and extrinsic motivation of students as the latter one might lead to inefficient learning. Besides that, the digital literacy of both teachers and students might create obstacles on the road towards the implementation of this new assessment. Consequently, further research is needed in order to overpass the borders of Haschek's classroom and explore the real impact and significance of this grading system on a larger scale.

References

Abrami, P. C., d'Apollonia, S., & Rosenfield, S. (2007). The dimensionality of student ratings of instruction: What we know and what we do not. In R. P. Perry & J. C. Smart (Eds.), *The scholarship of teaching and learning in higher education: Anevidence-based perspective* (pp. 385-446). Dordrecht: Springer.

Alkaharusi, H., Aldhafri, S., Alnabhani, H. & Alkalbani, M. (2014). Classroom assessment. Teacher practices,student perceptions, and academic self-efficacy beliefs. *Social Behaviour and Personality*, *42*(5), 835-855.

Arter, J. (2009). Classroom Assessment For Student Learning (CASL) Perspective on the JCSEE Student Evaluation Standards. Paper presented at the annual meeting of the American Educational Research Association, in the Division H symposium *JCSEE National Conference on Benchmarking Student Evaluation Practices* (AERA), San Diego, CA, EE. UU.

Berenson, S. B., Carter, G. S. (1995). Changing assessment practices in science and mathematics. *School Science and Mathematics, 95*(4), 182-186.

Bíró, G. (2014). Didactics 2.0: A pedagogical analysis of gamification theory from a comparative perspective with a special view to the components of learning. *Procedia - Social and Behavioral Sciences, 141*, 148-151.

Biggs, J.(1996). Enhancing teaching through constructive alignment. *Higher Education, 32*(3), 347-364.

Biggs. J. (2002). Constructive alignment in educational teaching. *HERDSA Review* of *Higher Education, 1*, 6-22.

Bliem, C. I., & Davinroy, K. H. (1997). Teachers' beliefs about assessment and instruction in literacy. *CSE Technical Report 421*. Retrieved from http://www.cse.ucla.edu/products/reports_set.htm.

Brown, G. T. L. (2002). *Teachers' conceptions of assessment* (Unpublished doctoral dissertation). University of Auckland, Auckland, NZ.

Brown, G. T. L. (2004). Teachers' conceptions of assessment: Implications for policy and professional development. *Assessment in Education: Principles, Policy and Practice, 11*(3), 301-318.

Brown, G. T. L. (2008). *Conceptions of assessment: Understanding what assessment means to teachers and students*. New York: Nova Science Publishers.

Brown, G. T.L. (2014). Chinese teachers' conceptions of assessment for and of learning: Six competing and complementary purposes. *Cogent Education, 2*(1)1, 1-19.

Bunchball. (2010). Gamification 101: *An introduction to the use of game dynamics to influence behaviour*. Retrieved from www.bunchball.com

Chen, Y., Hoshower, L. B. (2003). Student evaluation of teaching effectiveness: An assessment of student perception and motivation. *Assessment & Evaluation in Higher Education, 28*(1), 72- 88.

Deci, E, L., Koestner, R. & Ryan, R. (2001). Extrinsic Rewards and Intrinsic Motivation in Education: Reconsidered Once Again. *Review of Educational Research, 71*(1), 1-27.

DuCloux, K. (2009). Assessment conceptions and practices of first-year secondary mathematics teachers. *Paper presented at the annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, OMNI Hotel, Atlanta. Retrieved from http://citation.allacademic.com/meta/p374502_index.html.*

Elbow, P. (1996). *Getting along without grades and getting along with them too.* New York: Oxford, UP.

Gulikers, J,T., Bastiaens, T, J. & Kirschers, A, P. (2004) . A five-dimensional framework for authentic assessment. *Educational Technology Research and Development, 52*(3), 67-86.

Hativa, N. (1998). Lack of clarity in university teaching. A case study. *Higher Education, 36*, 353-381.

Jiang, K. (2011). The dangers of gamification: *Why we shouldn't build a game layer on top of the world.* Retrieved from https://krystlejiang.files.wordpress.com/2011/07/the-dangers-of-gamification.pdf

Lee, J., & Hammer, J. (2011). Gamification in education: What, how, why bother? *Academic Exchange Quarterly, 15*(2), 1-5.

Lombardi, M.M. (2008). Making the grade: *The role of assessment in authentic learning.* Retrieved from http://www.iun.edu/online/docs/ELI3019.pdf.

Meyer, L., McClure, J., Weir, K., Walkey, F. & McKenzie, L. (2009). *Motivation and achievement at secondary school. The relationship between NCEA design and student motivation and achievement. A three-year follow-up.* Wellington, N.Z.: Victoria University of Wellington.

Mikre, F. (2010). Review Article: The roles of assessment in curriculum practice and enhancement of learning. *Ethiopian Journal of Education and Sciences*, *5*(2), 102-114.

Moore, D. (2013). Conceptions of gamification and narrative assessment and learning. Retrieved from http://www.academia.edu/.

Mueller, J. (2005). Authentic assessment in the classroom and the library media center. L*ibrary Media Connection*, *23*(7), 14-18.

Nichols, J.D. (2006). Empowerment and relationship. *A classroom model to enhance student motivation*. Retrieved from DOI.10.1007/s10984-006-9006-8.

Pajares, M.F. (1992). Teachers' beliefs and educational research: Cleaning up a messy construct. *Review of Educational Research*, *62*(3), 307-332.

Pishghadam, R., Adamson, R. D., Sadafian, S.S., Kan, F. L. F. (2013). Conceptions of assessment and teacher burnout. *Assessment in Education: Principles, Policy & Practice, 21*(1), 34-51.

Randel, B., Beesley, A.D., Apthorp, H., Clark, T.F., Wang, X., Cicchinelli, L. F., & Williams, J. M. (2011). *Classroom assessment for student learning. The impact on elementary school mathematics in the central region* (NCEE 2011-4005). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.

Sadler, D.R. (1989) Formative assessment and the design of instructional systems. *Instructional Science, 18,* 119-144.

Shing, L, W. & Fai, K, H. (2008). Investigating missing conception of assessment: *Qualitative studies with Hong Kong teachers.* Retrieved from http://repository.ied.edu.hk/dspace/handle/2260.2/9845.

Stott, A. & Neustaedter, C. (2012). Analysis of gamification in education. *Technical Report.* Retrieved from http://carmster.com/clab/uploads/Main/Stott-Gamification.pdf.

Specht, W. & Sobanski, F. (2012). OECD Review on evaluation and assessment frameworks for improving school outcomes. *Country Background Report for Austria*. Retrieved from http://www.oecd.org/edu/school/49578470.pdf.

Spiller, D. (2012). Assessment matters: *Self-assessment and peer assessment.* Retrieved from http://www.waikato.ac.nz/tdu/pdf/booklets/9_SelfPeerAssessment.pdf.

Stiggins, R. (2002). Assessment Crisis: The absence of Assessment for learning. *Phi Delta Kappan*, *83*(10), 758-765.

Stiggins, R. J. (2005) From formative assessment to assessment for learning: A path to success in standards-based schools, *Phi Delta Kappan, 87*(4), 324-328.

Stiggins, R.J. (2008) *Assessment manifesto: A call for the development of balance assessment systems.* A position paper published by the ETS Assessment Training Institute, Portland, Oregon.

Svennberg, L., Meckbach, J. & Redelius, K. (2014). Exploring PE teachers' 'gut feelings'. An attempt to verbalise and discuss teachers' internalised grading criteria. *European Physical Education Review*, *20*(2), 199-214.

Tai, G. & Yuen, M, C. (2011). Authentic assessment strategies in problem based learning. *Australasian Society for Computers in Learning in Tertiary Education*, 983- 993.

Torrance, H. (1995). *Evaluating authentic assessment: Problems and possibilities in new approaches to assessment.* Buckingham: Open University Press.

Thompson, A. G. (1984). The relationship of teachers' conceptions of mathematics and mathematics teaching to instructional practice. *Educational Studies in Mathematics*, *5*(2), 105-127.

Ting, K-F. (2000). A multilevel perspective on student ratings of instruction. Lessons from the Chinese experience. *Research in Higher Education*, *41*(5), 637-661.

Van Herpen, M., Van Praag, M., & Cools, K. (2003). The effects of performance measurement and compensation on motivation. *De Economist, 153*(3), 303-329.

Woytek, A. (2005). Utilizing assessment to improve student motivation and success. Retrieved fromhttp://www.usca.edu/essays/vol14summer2005.html

Appendix A

Interview with Christian Hascheck

I. Personal information

1. Could you describe yourself in a few words?

My name is Christian Haschek, I'm an entrepreneur and teacher living in Vienna (AT). I was born in Austin, Texas but my family moved to Austria when I was just a few years old. I love working with computers and servers because I find it fascinating that these devices run our daily lives without us noticing.

2. Could you share with us your educational experience in a nutshell? What did you do after the A-levels?

After the mandatory 8 years of school I went to a technical college for engineering and software development in Vienna called "HTL Donaustadt". I graduated in 2010 with my "HTL Matura" (also called Abitur https://en.wikipedia.org/wiki/Abitur) and the title of "Engineer" (in German Ingenieur) For one semester I went to the University of Vienna to study computer science but it wasn't the right thing for me and currently I'm not studying anything

II. Professional experience

3. When did you start your working experience and in which field?

Before founding my own company I was often an summer intern for IBM and SVA (Social Security Agency) I don't have any official qualification for teaching I am a contractional computer science teacher which is very common in Austria because there are not nearly enough qualified teachers for this subject.

4. In our research we found out that you are self-employed. Can you share with us how and why you found your company "Haschek Solutions"?

I founded "Haschek Solutions" in 2008 (while still a college student) initially I sold webspace and domains because I thought it would look good in my résumé and also because I wanted to gain experience with customers and how to own a business without being financially dependent to its success. After 6 months of basic military training (2010) (which every man in Austria has to go through) I made a contract with a school in Vienna to maintain their computers and servers and after a while I got more

contracts. Also I have created a webfilter service because I saw in the schools I worked for that they all needed one but the existing solutions were too expensive or too complicated.

5. Why do you work as a hobby teacher? What makes teaching so impressive to you?

I was unhappy with many teachers I had in college. They could have taught us so much more interesting things but most of them lost the connection to modern technology many years ago. They taught out-dated methods and used old books and tools because at some point they learned it this way and didn't ever check if there is a newer way of doing things. I have the opportunity to teach kids how to do things today because I always try to keep up with technology and they appreciate it. I started teaching at age 23 and my students were 16-18 years old so I thought I could reach them on an "older brother" kind of way and not as the "all-knowing teacher". This worked very well and I often had the feeling that the students are so well behaved because they didn't want to interrupt me like they wouldn't interrupt a friend. The last reason was to improve my public speaking skills. If you can keep a class full of 16-18 year olds motivated for two hours a time you can pretty much do that to any other age group.

6. What is your philosophy of teaching?

I teach in a very open way. In the beginning of each year I present 4 to 6 topics to my students and they can vote on which one of them we'll work on this year. When we have set the topics I give every topic (I call them sections) an XP value. If it's a larger section like "Game development" I set the value of 500 XP, smaller sections get around 250 XP. Students are much more committed to a subject when they chose it themselves rather than being forced to learn about it. While teaching I give out XP for every positive interaction. To a certain degree I can use this system to shape my students' behaviour. For example if I reward students with more XP when they help others than if they just solve a problem alone the students automatically start helping each other more. This system is very powerful and I know I'm just scratching the surface on what it can do for students.

7. Are your beliefs aligned with the traditional grading system?

I think we don't need grading system like we have now. I think it would make much more sense if we use an "achievement system" instead of a grading system. I think every class should be divided in sections and when a student finishes a section, they should get an "achievement" for it which will be added to their report card. eg. "Achievement: Mathematics -> Curve sketching" Students should also be allowed to choose their subjects and should be able to "collect" the achievements they're most interested in. (Of course there should be mandatory achievements you have to have in order to graduate.) This system

would also be beneficial for companies who seek people with specific skills because they just look at the report card and see all things the student can do.

III. Initiation of the XP-based grading system

8. How did you come up with the idea about the XP-based grading system?

There was this one chemistry teacher in college who used a point system and I was fascinated by it. I was never a good student and for the first time I had a feeling of control over my grade because he told us how many points we'd need to get a positive grade. But his system was offline and the points had no reasonable values (one presentation was worth as much as an exam with all points). After graduating I created my XP-based grading system and I wanted to try it out myself. Luckily I got the chance of becoming a teacher in a school I worked for and I'm using my system since then. You could say I became a teacher to "reality check" my XP-based grading system.

9. How did you prepare for the implementation of the XP-based grading system?

At first I thought the whole system through and tried to find out the best way to do it. I wanted to keep it simple enough so I could use it without thinking too much about some parameters and I wanted a simple UI (User Interface) to enter the XP and reasons. I needed: - A list of my students - A field for XP - A field for the reason why they got the XP - A select box for the section I coded a simple website where I added my students and could start grading right away. btw: This is what the first version looked like: https://www.pictshare.net/store/5113e4c991.jpg

10. How did the headmaster/colleagues/students/students' parents/your family react to your idea about the new grading system? Did you receive support from them?

My students loved it from day one but in the first year nobody else was interested in it because many didn't understand how it would work any many colleagues were afraid that it would be more work for them. My headmistresses (we had 3 different headmistresses since 2011) were always supporting me by allowing me to use this system. Only after my system became popular I received many emails and phone calls from teachers, parents and just people who were like me (never motivated in school) from all around the world and many people congratulated me.

IV. Implementation of the XP-based grading system

11. Did you spend time researching how to implement a new grading system?

I didn't read scientific articles but I did read about the law and the austrian LBVO (Leistungsbeurteilungsbeurteilungsverordnung) which describes how a teacher has to grade their students) to find out if there are any conflicts. I did find one conflict: My system initially had no sections and the year was combined into one progress bar. The LBVO states that teachers have to grade students with more detail so I invented the sections. At first the system was just an open point system (open because my students could see everything I noted about their performance) but when I added a progress bar to visualize the progress it immediately reminded me of the progress bar in World of Warcraft and I renamed the point system to XP system.

12. How much time did it take you to implement the grading system?

From the first specific design ideas to the finished platform where I could grade my students it took about a month. When I realized that I had to add sections I basically had to reprogram the whole platform. I first had a working prototype in 4 days.

13. Did you face any difficulties when implementing the grading system?

Apart from the lack of sections I didn't have any further problems.

14. Did you make a lot of adjustments of the grading system after the implementation?

The system itself is very solid because it's very simple. After I added the sections I didn't have to change much about the system. Of course there is fine tuning for more intuitive handling but nothing big really.

15. How did you introduce the new grading system in the classroom?

Since I didn't use the traditional grading system as a teacher I just walked into the classroom, introduced myself and told them about the grading system and how it works like an RPG (Role Playing Game) with XP. The first class actually applauded when I introduced the system to them. They were really excited.

16. How did the students perceive it?

I never got any negative feedback from a student. The "most negative" thing I've heard was that one girl said "I wouldn't mind if your system would be used in other subjects but I don't think it's necessary". She was an A-student so maybe she never had motivational problems in school. Other than that my students love it. They say it's fair and they can check if it's fair. They can compare XP with each other and therefore see if somebody got less XP for the same effort.

17. Were the government and Inspectorate aware of your project? If yes, how did they react?

No I think the first time the ministry of education heard about my project was when they were interviewed by journalists about my system. I didn't need to ask their permission since my system didn't rely on a change of the grading system itself but was rather an addon for traditional grading since I give students access to my notes about their performance and they can always put it in the context of how much they have to do each year.

18. How did your job change after the implementation of the grading system?

Since I never taught with a different system I didn't have to change anything but I do prepare for lessons. I don't prepare PowerPoints or copy pages of text books but rather think about things I could show my students that I think will be interesting for them. The XP-based grading system doesn't need any further preparation since you just enter XP when you think a student said something that deserves a reward.

19. What are your plans for the future of this project?

After my grading system became popular in Dec. 2014 I received many emails from teachers who wanted to try this system themselves. So I developed Socialcube LITE in just two weeks. This platform is free for all educational institutions and currently has more than a thousand teachers and students who use it every day. It's important to me that this system is free because I think it could help a lot of students to get motivated to study when they see how little they have to do to reach the next grade. I'm thinking of starting a Startup company that will develop this idea even more but I don't have solid plans on that yet.

V. Assessment and student motivation

20. In your opinion, the main purposes of assessment are:

- Assessment provides useful, accurate information so that appropriate changes can be made to raise the quality of teaching and learning. (improvement)
- Assessment shows whether schools and teachers are making good use of the resources they have been given. (school accountability)
- Assessment shows whether students are putting in the effort they are expected to in order to learn. (student accountability)
- Assessment is a formal, organized process of evaluating students' performance, has no legitimate place within teaching and learning. (irrelevance)

21. Compared with traditional assessment methods, is “authenticity" an important element in your new approach to assessment?

- Yes
- No
- I don’t know

22. Do you agree with the statement that assessment needs to develop students’ problem solving skills related to real-world issues and high-level understanding?

Strongly disagree 1 2 3 4 5 Strongly agree

23. How important to you is the student motivation in the classroom?

Not important 1 2 3 4 5 Very important

24. In your opinion, which are the most important factors which have an impact on student motivation?

- Student - teacher relationship
- Student- efficacy Active students’ role in the learning activities
- Clarity of the lessons
- Teacher's pedagogical expertise
- Authentic assessment
- Feedback
- Scores (grades)
- Other

25. In your opinion, what are the most significant benefits of the game dynamics in the grading system?

- Earning XPs
- Completing achievements
- Gaining status in the course of the game
- Personal avatar/Autonomy
- Competition
- Rewards
- Other

26. **In your opinion, how do you classify your grading system?**

- Performance-oriented
- Competition-oriented
- Collaboration-oriented
- Individualistic-oriented
- All of them
- Other

27. “The Austrian grading system is a mix of formative and summative assessment” What do you think about this statement and where do you see your XP-based grading system?

I think the statement is true but I see a higher focus on the formative part and less on the summative. Like many other grading systems the Austrian is very results-focused and in the end nobody cares how you came to your final result (grade). What my XP-based grading system provides is a much more detailed picture of a student's performance because it uses grading sections. In the end of the year the students can see their grades but they can also see which grading sections were easier for them to understand. I think a motivated teacher doesn't need the XP grading system to see where a student might have problems but it helps by providing the data and graphs so the teachers sees the overall performance of a student and can help much faster when they see the student is having problems.

28. Did you take into consideration the pros and cons of the formative and summative assessments when creating your grading system in 2010?

The XP-based grading system was created because I was (years before) an unhappy student. I always thought by providing the raw grading data to the students, I can make them care about their grade and this worked perfectly. I didn't overthink it I just knew there was a better solution for grading than the ones we already had and I never thought about formative and summative assessment methods.

29. To what extent do you contribute to your students’ learning process?

If we're talking games I'd say I'm an NPC (Non-player character) that provides the quests to the students. This is important and by choosing the right kind of tasks (or quests) I can steer the learning process. Since I make every homework optional but I always tell my students how many XP that would earn them, almost all students do all homework assignments. By taking the pressure off them by not saying "You have to do this or you'll fail" and giving them the data to figure out themselves where they stand grade-wise, they have a high motivation in learning. And the strongest feedback I can give are XP.

Instead of just saying "you did great on this assignment" I give them more XP and since they know how much XP are worth they feel instantly supported.

30. Do you give floor to your students to self-evaluate / peer-evaluate themselves in the course of their learning process?

All students see a graph for every grading section for how well they're doing in comparison to the rest of the class. This tool allows them to evaluate their stand in the class. Peer evaluation is not needed since I give them the XP and they put them into context.

31. Are the report cards still used in the school and, more importantly, in your classroom?

Yes I'm forced by law to give them grades and these grades have to show up on the report cards. If I could change the system I'd rather not put grades on report cards but a list of "Achievements".An achievement would be every grading section a student passed. So instead of listing subjects and the grades of the subjects I'd give them a report card which says "Student can calculate triangle vectors, Student can program in C++, Student can..."

32. Do you think that the report cards are an effective means of supporting student learning? Why?

I don't think the report cards have a strong influence on the learning behaviour of students. There are a few students each year which try to "ace" the report cards but out of 200 students only about 5 would be like that. For the majority I think the grades on report cards are demotivating and vacuous. Many students I know think that report cards tell them about who they are. Bad student's sometimes think that they're worse humans than better students. Which is not the case at all.

33. In your opinion, what is a good assessment?

For a student to assess their own work they have to get all the data. In the end of a school year almost no student can remember how many homeworks they did or didn't do and how they were doing in a specific sections in comparison to others.The raw and emotionless data can tell them what they did good and where they were not so good, much better than any report card or assessment system can.

Appendix B

Questionnaire regarding the impact of the XP-based grading system on the students' motivation

Dear participants,

We are kindly asking you to participate in our research based on the innovative approach to grading developed by Christian Haschek. We would like to know about your satisfaction and motivation with the XP-based grading system and the reasons which lie behind them. The responses will be kept anonymous and the data will be accessible to only those working in the study.

Thank you for taking part in our survey!

Best regards,

Maria Graf

Mirela Peykova

Tu Tran Le Thanh

(Master students from Vrije Universiteit Brussel)

1. How satisfied are you with the "traditional" grading system, from 1 (Very satisfied/Sehr gut) - 5 (Very dissatisfied/Nicht genügend)?

Very dissatisfied 1 2 3 4 5 Very satisfied

2. How satisfied are you with Professor Haschek's XP-based grading system?

Very dissatisfied 1 2 3 4 5 Very satisfied

3. Which grading system do you prefer?

- The "traditional" grading system (1 - 5)
- The new XP-based grading system
- Both
- None of the above
- Other

4. Why do you prefer this grading system?

Specify the reason(s) for your choice.

5. Which grading system do you find more motivating?

- The "traditional" grading system (1 - 5)
- The new XP-based grading system
- Both
- None of the above
- Other

6. Why do you find it more motivating?

Specify the reason(s) for your choice.

7. How much do you agree with the following statement: When using the XP- based grading system, it is easy to understand the purpose of the tasks assigned by the teacher?

Strongly disagree 1 2 3 4 5 Strongly agree

8. In your opinion, when using the XP-based grading system, which is more important to you?

- Completing the tasks assigned by the teacher
- Getting more experience points
- Both
- I don't know
- Other

9. Which factors influence your motivation in class?

You can choose more than one answer.

- Active participation in class
- Transparency (clarity of the teacher's assessment criteria)
- Good relationship with the teacher
- Teacher's feedback
- Grades
- The XP-based grading system
- Other

10. Did you face difficulties with the XP-based grading system?

- Yes
- No

- I don’t know

11. If yes, what kind of difficulties?

12. Would you like to have the XP-based grading system implemented in the other courses?

- Yes
- No
- I don’t know

Additional information/ Feedback