Restarting School

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Abstract

Taking a closer look at successful project and practices of the eminent speakers in the field of education we can see they have many things in common.

The first approach that is the repeatedly mentioned ***»self learning«****. The winner of TED awards 2013 Sugata Mitra shows the power of children teaching themselves in his excellent project a Hole in the Wall. He argues that children with computer alone can learn the knowledge required of a western secretary in just nine months. Salmir Khan of Khan Academy also supports the idea of a tutor who sets the educational environment and allows kids, with some tutor support, to teach themselves and each other. The findings were also supported with the research of Benjamin Bloom* [1] *back in 1984. His research shows that one on one instructions produce significantly better results, compared to standard lecture-based classroom.*

The other frequently mentioned approach is ***»gamification«****. Prof. Lee of Colombia University argues that Gamification attempts to harness the motivational power of games and apply it to real-world problems such as motivational problems in schools. The most important fact we can learn from games is their positive attitude tofailure. Games maintain this by making feedback cycles fast and keeping the stakes low. This means that players get rapid feedback and can keep trying until they succeed, while in school the feedback cycles are usually long and students only have few opportunities to try.*

But both approaches need to be supported with ***encouragement.*** *Namely, almost all the authors emphasize it as one of the most important factors of success. It is obvious and well-known, but in practice often forgotten fact by educators.*

In the article I am going to present my experience with these approaches in the last decade of my changes in educational practices. At the beginning I started with multimedia lectures and quizzes, which allow self paced learning, similar to Flipped learning. But this year I have introduced these new findings and changed standard testing with short assignments that could be repeated until students succeed in solving them. The first results, which were taken at the beginning of the student year, show that up to 90% of students supported this change.

1. Introduction

Restarting schools means learning from the best practices in the broader field of education and implementing those practices in our schools, until the effect of those practices shakes the foundations of our school system. Only what will evolve from this approach has the potential to finally engage students in discovering the full range of their interests and potential.

The paper presents some common characteristics of those practices and discusses the research of future, present and past implementations of them in the classroom.

2. Self/Peer Learning

Sir Ken Robinson [2] gives us an interesting starting point about how we learn when he says that actually no one teaches children language (at least not systematically). Of course, parents and others guide and correct young children as they learn to speak and they may encourage and applaud them. But babies don't learn to speak by instruction.

Sugata Mitra [3], winner of TED prize 2013, came to similar conclusions with his experiment "Hole in the wall". He stuck a computer inside the boundary wall of the slum and monitored how children started teaching each another. Encouraged by results, he concluded that if we allow the educational process to self-organize, then learning emerges all by itself. Teacher's role is just to set this process in motion.

Therefore it comes as no surprise many educators started to “flip the classroom”. It means that students first gain exposure to new material outside of class, usually via reading or lecture videos, and then use class time to do the harder work of assimilating that knowledge, where they have the support of their peers and instructor.

Many schools use educational website Khan Academy to flip classroom. Its founder Salaman Khan says that by flipping the classroom and using technology, you're actually humanizing the classroom as it allows teachers to spend 100% of time with the students. It also enables teachers to follow students’ progress and see which one of them is stuck. What Khan proposes is for teachers not to intervene themselves, but rather send a student who is already proficient to tutor his peers [4].

Because the feedback comes from a peer rather than someone in authority, the recipient of the feedback appears to be much more able to accept it even if it is far more hard-hitting and direct than any teacher would have put it. What is more, a person providing the feedback benefits just as much as the recipient because they focus to internalize the learning intentions and success criteria in the context of someone else’s work [5].

3. Gamification

Worldwide video game marketplace reached $93 billion in 2013 and it is forecasted to reach $111 billion by 2015 [6] so it comes as no surprise games and game-like elements have begun to invade the real world and there is definitely something we could learn from them. Here's where gamification comes in.

Gamification attempts to harness the motivational power of games and apply it to the real-world problems [7]. It’s defined as the use of game elements (badges, points, levels, leader-boards, achievements…) and game design techniques (fun and appealing, progression...) in non-game contexts (e.g. business, education, health...) [8].

Our interest focuses on what gamification has to offer in the field of education, more specifically, how to harness the motivational power of games and apply them to the motivational problems in schools.

President of Khan Academy Shantanu Sinha [9] says that unlike our school “most games are fairly non-judgmental and you feel good when you progress”. Furthermore, Tony Ventrice [10], a veteran game designer, emphasizes the importance of breaking larger tasks into smaller ones as long periods without a sense of progress can be extremely discouraging. Another important aspect is autonomy as “people need to feel free to do things their own way,” therefore it's important to enable multiple routes in which people can express themselves.

One of the most important lessons we can learn from games is positive attitude to failure. Games maintain this by making feedback cycles fast and keeping the stakes low. This means that players get rapid feedback and can keep trying until they succeed, while in school the feedback cycles are usually long and students only have few opportunities to try [7]. No wonder students in school experience anxiety and not anticipation like in games [11].

But at what cost does gamification provide motivation? Deci and Ryan [12] argue that the most powerful is intrinsic motivation while gamification seems to replace it with extrinsic awards like points and badges.

Others on the other hand argue that gamification offers much more than an overlay of a scoring system. Meaningful gamification namely focuses on the participant to find meaning in the activity, which can then lead to building up internal motivation to engage with it [13].

Example of meaningful gamification is “Stack Exchange” a group of question-and-answer web sites where according to Jeff Attwood [14], the co-founder of the site “all the gaming elements are there in service of a higher purpose”. Gamification was used to encourage people to do things that are normally considered boring and to give structure to groups to do what's best for the world rather than their own specific, selfish needs. Atwood concludes that without those gamified elements what you get is actually just a forum which is broken by design.

So gamification, if used correctly, with a clear purpose, seems to benefit individuals and society without negatively affecting intrinsic motivation, or as Atwood said about motivation for creating Stack Overflow: “programming is supposed to be fun – and it is, if you're doing it right”.

4. Encouragement/Motivation

Though the power of encouragement is well known in education, educators often seem to forget how really important it is. Encouraging environment is part of every successful game and every successful school model. Psychologist Alfred Adler revealed its importance half a century ago when he said that "educator's most important task, one might say his holy duty, is to see to it that no child is discouraged at school" [15].

An excellent example of what encouragement can do is Sugata Mitra's already mentioned project "Hole in the Wall". After initial unsupervised 75 days of self-learning with a computer he introduced a mediator (who had no knowledge of the subject) to the children in slums for another 75 days. The mediator's only role was simply to commend the children for their efforts and encourage them to go further in their investigations.

The results show children from slums surpassed the Government school in first unsupervised 75 days and reached standard in the urban elite private school in next mediated 75 days [3]!

If encouragement positively affects motivation, grading and testing does just the opposite. Namely, standardized testing "stifles individuality, flexibility and creativity," [16] and "only promotes motivation towards performance goals rather than learning goals" [17].

Alfie Kohn [18] emphasizes three main effects of grading, namely that grades tend to reduce students' interest in the learning itself; grades tend to reduce students' preference for challenging tasks and grades tend to reduce the quality of students' thinking.

On the contrary she argues, when "the curriculum is engaging – for example, when it involves hands-on, interactive learning activities -- students who aren't graded at all perform just as well as those who are graded" so the goal of teacher is "to make grades as invisible as possible for as long as possible. Helping students forget about grades is the single best piece of advice for creating a learning-oriented classroom".

5. Research

Due to increasing resistance to the classical teaching methods that was shown in increasing boredom of pupils and their non-cooperation in the classroom back in 2002 a form of flipped classroom (with multimedia snapshots) was introduced.

Results showed not only better satisfaction among students but also their better comprehension. Not to forget that this method made teacher's work a lot more dynamic and pleasant as eliminating lectures brought additional time for more personal interaction with students and faster remedial if problems occurred.

This school year (2013/14) however, classical tests were replaced with more "gamified" approach, where each student had to complete a specific number of smaller assignments that could be repeated infinite times. Because of importance of mastery, emphasized already by Benjamin Bloom [19], the passing rate was put quite high. Students had to show they really understood the subject matter before they moved on.

When students completed the assignment they got a "checkmark". If they got a specific number of checkmarks until the end of semester they got the grade, otherwise they had to complete these assignments until the end of the year.

Despite initial problems results, as shown in the table below, are very encouraging.

New Method	More	Equal	Less
Preference	*86%*	*7%*	*7%*
Comprehension	*50%*	*41%*	*9%*
Engagement	*46%*	*50%*	*4%*

Also, 92% of the students who repeated the year claimed they prefer this method over the method of just flipping the classroom.

Though some statements are more difficult to check then others, there was clear evidence of greater engagement. It was especially notable among most problematic students and when they could gain checkmarks (even if they were written down only in the teacher's private notebook). As this method eliminates standard testing and all other time-consuming activities that come along, it creates time that can be used for deeper learning so students learn more.

6. Conclusion

There are numerous schools like Big Picture Learning and programmes like Learning Futures with impressive results. They focus on student's autonomy of interests and needs, enquiry/problem based learning and purposeful real-world projects (with public exhibition) that include connections with community (e.g. internships) and extended learning relationships (mentor, expert, coach, tutor, peers, parents) that help them on their way to mastery [20, 16].

For various reasons, not every school can implement those methods. Therefore future research will focus on a method which will be easier to implement in the current rigid school settings and will take into consideration findings of the paper and the research.

Research will be done on “Gamified Peer Learning” method that includes the majority of these findings and is based on flipped classroom; group learning and peer tutoring; enquiry based learning and personalized projects; smaller assignments that are check-marked; reputation points for helping others and encouraging environment (work and engagement as the basis for the necessary grades).

With the success of this and similar methods, other “foundation-shaking” practices could gain more open access to the under-structure of our school system. At that point even the traditionalists and policymakers will have to consider the…restart.

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