

# Patient explanations lead to good things

## AN INTERVIEW WITH BILL TIHEN

Bill Tihen studied engineering but found the field a bit repetitive for his taste. He moved to education, where he applied his engineering approach in schools. Of course, not all curricula are ideal fits with an engineering approach to teaching and often it can feel that one is always at the beginning and doesn't get into any subject very deeply. Bill moved on to IT, at schools, and while at LAS helped build experimental classes in which he was able to apply his engineering and IT mindsets. He now works in Bern, where he can be seen walking his dog, Njima, after hours.

**Paul:** It's you who you got LAS started with agile - at least that's how I see it. Is that your perspective, too?

**Bill:** I'd say we were migrating to agile in the IT office, or agile/kanban. When we started our research project with the classroom sets of tablets and the large touch screens we had a project to really test agile workflows (not just Kanban workflows).

**Paul:** That was the project for Samsung in 2013. How was that agile?

**Bill:** As a team, my IT colleagues and I developed user stories for the study - and then we ran it past you. It wasn't all that agile, I guess, but it was our first step away from a traditional project management approach. We were moving away from plan-based project management to user needs-based project management.

**Paul:** At the time I had no idea what agile

was, nor how you were managing the study. You might have told me but I probably didn't understand what you were saying. The Samsung project is the one that really gave rise to the research center, and now I learn it helped kick off our agile mindset as well.

Around that time we spent a lot of evenings talking management, too. Do you remember how long it took for me to start seeing the agile mindset?

**Bill:** I don't. I know there was a turning point, though, when I got Sutherland's book about doing twice the work in half the time. That's where I first ran across eduScrum, which I googled for more info, and then we really started changing our thinking.

**Paul:** That's when I had the experimental language class, with projects that weren't going very well, and you suggested we try eduScrum.

**Bill:** Right. That's when you really realized there was something to it.

**Paul:** Plus the eduScrum guide was in Dutch, which was fun because I was studying Dutch in the experimental language class.

**Bill:** Right.

**Paul:** And then we talked to John Miller and ended up going to scrum training in the Netherlands - Scrum for Schools, as it turned out. At the time we didn't realize that



eduScrum and Scrum for Schools were different organizations. We even ended up doing a poster session during lunch.

**Bill:** The main takeaways I got from that conference were the nice things they do with student self-management. I was a little surprised by how tight they stuck to scrum rules. Not that this is all bad. Kids need a structure, it's just not the way I like to do it. I like to focus on the student's connection to the topic they are studying, so all my classroom "rituals" revolve around encouraging exploration, experimentation, and reflection. Each student is engaged in a "story" they choose related to a topic. I'm not so interested in following a process just to be true to the process.

**Paul:** We experimented a lot in the language class - I remember trying a variety of ways to do a burndown chart. We made it really complicated for awhile. Then we quit trying to use one altogether. But you brought it back in the 3D Nautical Design class you developed a couple of years later.

**Bill:** In that class I did it differently though, using discussions with the students. Like scrum, but different. I laid out certain steps that students

had to accomplish, all of them moving toward a completed boat. I started with easy challenges, liking designing and printing a box instead of a boat, and then getting increasingly difficult with each iteration.

**Paul:** How did that go?

**Bill:** Ideally, students should be able to take a complex project and create their own graduated levels. But so far my experience is that middle school and high school students are so focused on a "correct" solution that they jump straight to a perfect solution. They haven't yet learned how to build their skills toward a goal - and ideally even enjoy the process and hurdles to get there! I combined the burndown chart with a navigation discussion using sailing as the analogy.

**Paul:** From what I remember, that worked.

**Bill:** Yes. I also like to think of it like levels in a video game. You lay out a path, with a story, and show the kids the beginning, and maybe a glimpse of the end, and then you help them with the path, showing the minimum pieces that are each building blocks toward the end.

add line space

They struggle just a little, but you make sure those struggles are easy in the beginning, and get harder over time, just like in a video game.

**Paul:** You could coin a new term, like "Addictive Education" or something. Like how when you fail at a video game your first impulse is to restart from the beginning and do better the next time.

**Bill:** Wouldn't that be nice in school!

**Paul:** Because you want them to keep up the effort and really be able to produce.

**Bill:** Think where these kids are starting. If you were to ask any of the students at the school today how to do 3D design for a boat, they would probably look at you like you have three heads.

**Paul:** Meaning they wouldn't know where to start?

**Bill:** Right. But you lay out the project in challenging but doable steps, and with time they can do it. Another example is the

engineering class where all students created a company ...

**Paul:** That's the part where they create a story...

**Bill:** ... and then create web pages for their company on Github. Because there was a story there was motivation to build the webpage - and they added products to the webpage as they made them. They could do easy projects first, and grow in iterations, not at all unlike making a box first, instead of a boat, and then making a box with a triangle prow, and then a box with a prow with a bottom, and so on.

**Paul:** So it's like the video game levels again. They kept the webpage up-to-date with their products, in short but increasingly complex iterations.

**Bill:** Right. The kids could also see what other groups were doing, between iterations, and learn from each other, or even get motivated by each other.

**Paul:** Lots of people react negatively if kids are seen as copying ...

**Bill:** In my class, the rule was: if you don't

incorporate at least one idea (and credit the person) from another group you aren't done yet, period. The students had to prove that they had gotten ideas from others. So I would say, "Steal ideas from each other and make your own variation relevant to your project, goals and storyline."

**Paul:** Every iteration you collect new ideas, get new suggestions for changes, and then you have to be able to incorporate the feedback.

**Bill:** Right. And you had to be able to credit at least one idea to someone else.

**Paul:** That's an interesting take on teamwork.

**Bill:** It changes the nature of competitiveness. You have to learn from each other, it's built in. But seeing the work of other students, at the same time, makes the students a little competitive. They want to build cool stuff like the other teams.

**Paul:** That's inspiration.

**Bill:** And perhaps intrinsic motivation. They are inspired. They are competitive. As long as the students are working ideally from their own motivation - not mine, I don't care too much about the underlying reason. And once they are working, my job is to make the minimum standard hard enough so that everyone has to struggle a bit, so that there is a feeling of success in their accomplishment. It has to be hard, but not so hard that the motivation is all external. If the teacher has to push too hard, they associate negativity and external motivation with the topic.

**Paul:** It's just like the video game levels again. The levels can't be too easy, because that's boring. There has to be struggle, but not too much at first. And as soon as you finish one level, there's another level immediately available that builds on the same skill, just a little bit harder.

**Bill:** Right.

**Paul:** How does this tie into the 10 practices that we came up with for EDgility?

**Bill:** It ties in because we came up with the ten practices together, but also because in many ways this is how I always taught, especially back when I was a math teacher.

It's why I like talking EDgility instead of agile education, because it's the education that's important, not just being agile that's important. We have to lead with education and learning and enjoying ~~and enjoying~~ that process.

**Paul:** I do wonder sometimes if we are just repackaging old themes in education in a vocabulary that comes from agile, or whether we are really working on a new mindset for education.

**Bill:** There's a difference of doing agile things and being agile. You can focus on doing agile things, for example using a kanban board, but if the effort isn't growing into self-motivation, self-reflection, and learning to find doable steps to a goal, then is it really helping educate or just another process over people strategy?

It's important to start with education, kids who have ownership, and self-motivation (or at least not teacher, grades or fear-based motivation). You need kids who pick their own goals and set their own pace and learn to scaffold their own projects and learning, who enjoy the exploratory aspect of the unknown.

**Paul:** So ... learning.

**Bill:** Right. Then kids can learn whatever they want and need. To that end, I feel it's important to give students projects and contexts where no one has a known, perfect solution. Where context is important and where learning isn't defined by the ability to memorize, or use Google well, but instead to interpret and synthesize ideas into something meaningful for the kids.

**Paul:** One way we tried to shake things up was making the academic exploration classes in the middle school gradeless. Was that a move that supported the agile mindset?

**Bill:** I think so. Going gradeless helps students to get away from doing the work the way the



John Miller made his third visit to LAS in August 2019 to deliver a two-day Certified Scrum Master training. LAS faculty interested in working with an agile mindset - particularly in the new Edge programs for grades 9 to 11 - joined forces with some interested former visiting scholars and, happily, the source of inspiration for us here at LAS, Bill Tihen.

John's work can be found at Agile Classrooms ([www.agileclassrooms.com](http://www.agileclassrooms.com)).

EDgility

teacher says, which is unempowering, and to learn to pick the level of quality they are going after, on their own individual paths. While having lots of choice doesn't make things agile, I don't think you can say the students are working in an agile mindset if they don't have any choice.

Without grades, some students do the minimum, but most go way beyond expectations.

**Paul:** What do you mean by the minimum?

**Bill:** I define the minimum to be work that has been influenced by others and demonstrates enough knowledge to solve a dilemma within a context. This is very important. The minimum work is that kids have to enough knowledge and understanding to solve a dilemma and understand the compromises they themselves introduced. I'd say this is wildly underappreciated in education, but in the end makes the learning meaningful and requires understanding. I go to great lengths to ensure learning is within a context and has a dilemma. That's my definition of minimum learning, which by the way is far more rigorous than tests. So I guess I'm pleased when when students get by with the minimum, because I've set that bar high.

With the pressure of grades - meaningful contexts - using stories in my case - and solving dilemmas is a difficult sell to the kids. Their focus quickly becomes the grade, not the joy of learning and the fun of solving a dilemma through exploration and understanding. I find grades very distracting for the kids and for my joy of learning.

Another huge drawback of grades, for me, is that grades force me to have power over their learning. That steals the underlying meaningful context and story line from the students and makes my storyline the important one. I do everything I can in a classroom to be non-judgemental. I have the other kids provide most of the feedback and suggestions. Students assess those suggestions within the context of their goals.

**Paul:** How do you do that?

**Bill:** I teach a non-judgemental feedback process that they all learn, and I supervise closely in the beginning.

My idea of an ideal final exam is a public presentation. I want the kids to have ownership for the quality of their work and to feel proud - or embarrassed - when presenting. Like when the students present their story and the audience has fake money to buy the solution that they enjoy or think is best. This allows for a diversity of appreciation and feedback and is in many ways much more natural and diverse than just my feedback. This is also a much nicer role to have with the kids.

**Paul:** Are there any practices that we describe in our Springer chapter that really jump out at you?

**Bill:** Uplift. That has to be it. Being uplifting in learning is the groundwork for all the other practices. For example, it's much more uplifting to be redirected than to be told how to do things all the time. And as teachers, let's admit it, we tell students how to do things a lot.

**Paul:** So being uplifting is the basis.

**Bill:** Let's call it the ground floor. Then we can call whatever educational goal we have the top floor. The agile practices that accompany the project-based learning we are striving to support are all the floors in-between.

**Paul:** And of course we were making the case that those ten practices should all be working together, and probably some we didn't think about, too.

**Bill:** Of course. And in the same way, I argue that not only should certain good practices be happening concurrently, at least if we want a good educational environment, but the concepts students are learning should be happening at the same time, too.

If students are working in a context, in a story - say, like when they created boat companies

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and designed, printed, tested, and marketed their own boat designs - learning is authentic. All the different skills are integrated: engineering, design, geometry, advertising, all of it. You aren't just doing science that somebody else already did, in an environment in which the teacher took out all the messy variables. You are doing something that feels original. You are making meaning yourself. You are telling your own story.

That has a totally different feel than doing what the teacher says.

**Paul:** If you had taken a different life path you might have been a curriculum theorist.

**Bill:** Maybe. I didn't know that job even existed!

**Paul:** Do you think there's a future for agile in schools?

**Bill:** Remember, I don't think "agile" is the goal. I think learning to understand is the future of schools. I really feel that all systems (even agile) are flawed unless learning is based on exploration within a context in which the student can solve dilemmas. That's my engineering background. Agile is helpful with learning to take apart complexity and make the parts learnable. Agile also has nice ways to track progress. The built in emphasis on reflection is also important for improving learning and making it more enjoyable.

However, schools are very attached to grades and evaluation and correction. I don't



anticipate much change is schools until the top-down approach to learning, the teacher push process, is replaced with bottom up student growth, a kanban pull by students. Until that change happens, all reforms are just a change in the paint color - not a change in the learning process.

**Paul:** That's heavy.

**Bill:** Schools are far too concerned that everybody is doing and learning the same thing. And schools are worried if students don't know the answer. But I think, who cares about the answer?

**Paul:** Who does care about the answer?

**Bill:** The answer is boring. It's the question that is interesting. And asking the right question, at the right time, is the goal. It's okay to figure things out. And it's okay for the teachers to have to figure things out and for the students to watch you figuring things out. You give students guidance by modeling how you figure things out, and you try to solve real problems that no

# Ten Agile Practices

Getting Agile at School was published in a collection of chapters about agile in education (Agile and Lean Concepts for Teaching and Learning). We outlined 10 practices we believe contribute to an agile mindset. All of these practices are reflected, sometimes directly, sometimes indirectly, in the interviews and conversations we have had with colleagues applying agile in schools. Our practices are:

- 01 **EXPLORATION**  
Exploration over fixed content
- 02 **GROWTH MINDSET**  
Growth over stasis
- 03 **TRUST**  
Self-regulation over teacher control
- 04 **TRANSPARENCY**  
Visibility over obscurity
- 05 **ADAPTABILITY**  
Flexibility over rigidity
- 06 **SMALLIFY**  
Quick, workable iterations and feedback over big plans
- 07 **VALUE**  
Valuable learning over convenient assessments
- 08 **COLLABORATION**  
Working together over competing against
- 09 **REDO**  
Reflection and progress over right and done
- 10 **UPLIFT**  
Problems as opportunity over problems as problems

What practice would you add?

one has an exact answer for. That's so much more real than when the teacher always knows the answer and the students go through the steps that the teacher has laid out. In this case you can be sure the context and dilemma are real and not just another example from a page in a book.

There's also way too much fear in schools. People worry about experimenting with kids. People worry whether the kids know the answers. And if the teachers know the answers. In my opinion, learning should be fun and exploratory. Let's say that school should be 80% exploration and 20% results.

**Paul:** Another way to say that is maybe that school is driven by answers, not questions.

**Bill:** Messy demos where students discuss context and compromises are more important than getting things right in a void. Solving dilemmas within a context, being able to show processes, learning, and exploration, taking and adapting feedback through demos is more important than right answers on tests. That requires a much deeper understanding and more internal motivation.

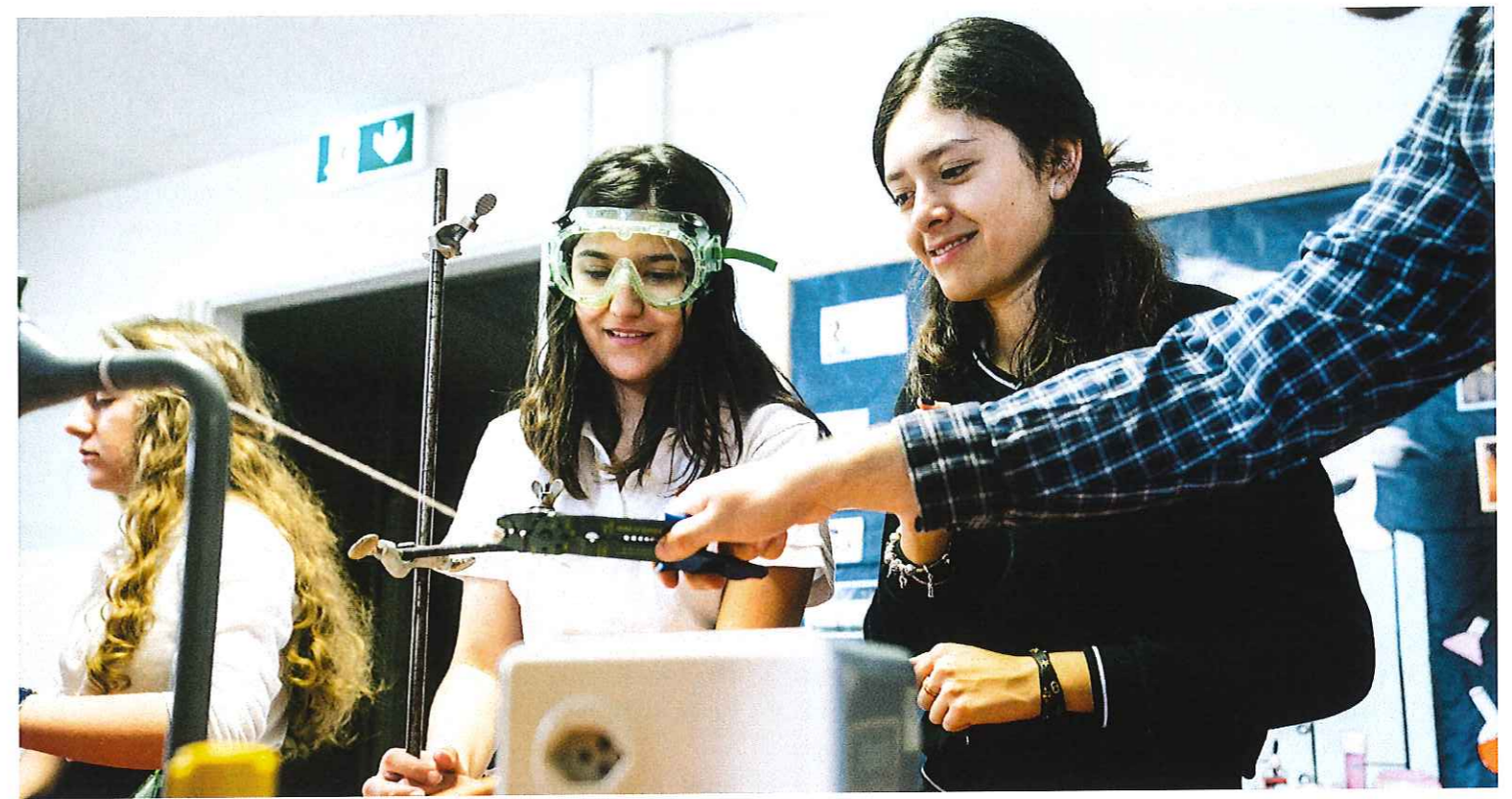
**Paul:** OK.

**Bill:** I want kids to ask me questions I don't know the answer to so that we can figure out an answer together. I don't want them asking me things that are just out there on the internet anyway. I send them off to Google or another student when I get asked those kinds of questions.

Standard school is about proving stuff, not excellence. You could think of it as a series of disassociated, individual proofs. Think of kids that are really good at math - what I used to teach. Ask them an applied question and they'll say ... "I don't know. What page is that on?" It's nice they can do the problems in the book, but to what end?

**Paul:** Is there anything you'd like to say in summary?

**Bill:** I think it's fantastic that you and others at LAS are working on agile. You are simplifying



complexity so that it's workable. And you are focusing on reflecting on the learning process, making it more enjoyable and giving students self-control. These are important in agile and education. That's what agile can bring to education. And I knew that you had internalized an agile mindset when you started thinking more about people than processes. The process is there to help people, not the other way around.

**Paul:** And you contend that schools tend to get it backwards.

**Bill:** Education can't be about the framework. It has to be about the people.

**Paul:** One time you said to me that schools are the biggest waterfall system you could imagine.

**Bill:** Standard school - and that's just about all of them - has subjects, curriculum, units, and even lessons all planned before the school year starts. For students of a certain age, regardless of ability. And all packaged in isolated boxes. On top of that, schools ask kids to do lots of different things at once, all of them unrelated and generally devoid of a context. And without input from the kids to make it their own!

Everything that makes it hard to be good and efficient at learning and working, well, schools do that. On top of all of that we add external correction, grades, and pressure.

**Paul:** Wow.

**Bill:** Maybe the way schools work is good if the goal is to teach students how to survive in a world of bad managers.

**Paul:** Those are some strong statements.

**Bill:** You can redact if necessary.

**Paul:** No. I think what's necessary is that we confront exactly what you are saying. You have a good insider-outsider perspective as a former math teacher turned IT specialist, who returned to the classroom for the unique classes you talked about here. At the end of the day, whether we are agile or not isn't so much the point. What we want to get at is some basic realizations about how we might be doing education far less well than we could. And how we can turn those bad practices around.

**Bill:** Yes. Little kids like to learn. They integrate things and they like to learn. Why take that away as they get older? 14