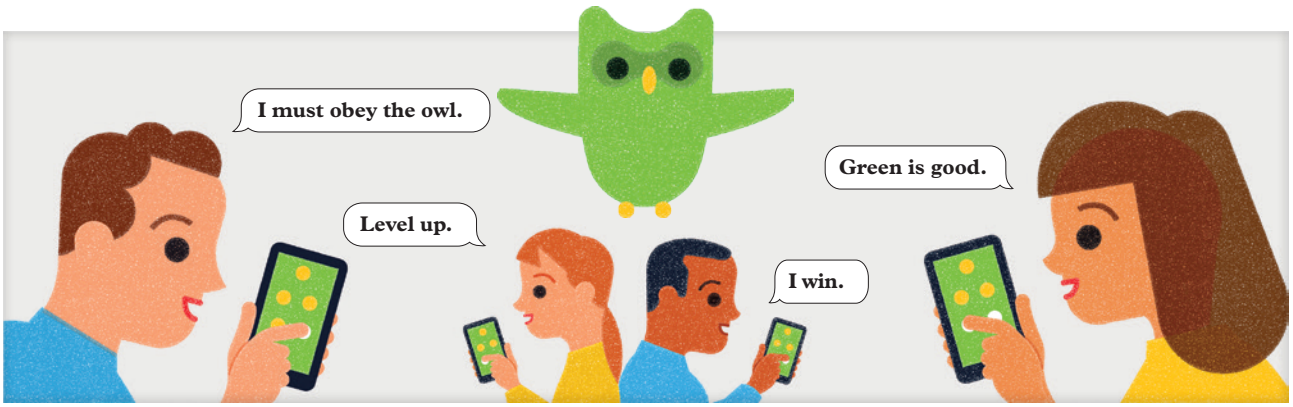
Mark my words

The world's most popular language-learning tool uses our own innate competitiveness – and a passive-aggressive owl – to keep users motivated.

By *Ed Stocker*
Illustrator *Adam Howling*



The owl isn't upset but nor is it entirely happy. The green-bodied and oddly legless animal – gender identity uncertain since once being spied wearing a Wonder Woman outfit – may be looking chipper but one senses that its chumminess masks something altogether more passive-aggressive. Perhaps it has something to do with the increasingly exasperated emails declaring, "Keep the owl happy. Learning a language requires practice every day." Or the fact that if you fall foul of the owl further still it threatens to take flight unless it sees a proper commitment to the task at hand. That task? The bane of high-school students, overseas second-home owners and would-be international courters: learning a foreign tongue.

Duo (to give the virtual owl its proper name) is the official mascot of Duolingo, a language-education start-up founded in 2011 and based in Pittsburgh, Pennsylvania. In our world of technology-induced information overload and diminished attention spans, Duo is tasked with persuading learners to persevere.

For Guatemalan Luis Von Ahn, the 39-year-old co-founder and CEO of the company, the owl's good-cop, bad-cop tactics are actually very effective. "We've run thousands of tests to get people addicted," he says, joking that the owl is like a nagging mother. According to Von Ahn, when Duolingo first launched – it is primarily a mobile-phone app but also has a web platform – only about 12 per cent of people were hooked from the get-go (meaning they'd go back for more the day after they first visited). He says that figure has now risen to about 55 per cent.

The business of language learning is nothing new. Depending on your age you might remember a relative proudly brandishing cassette tapes from the latest "guru" claiming a breakthrough in how to learn another language (more often than not, in your writer's case anyway, the dulcet cadences of Michel Thomas). As the hardware shrunk to CDs, new players came along, including other pay-for services that were big on advertising such as Babbel and Rosetta Stone, the latter dismissed by Von Ahn as sluggish and more an exercise in marketing than an educational tool. (Rosetta Stone's CEO John Hass responded that "today's Rosetta Stone is very different from the iconic yellow-boxed product we originally came to market with 25 years ago"; he also said that the company was now "mobile first" and that many people come to the app after an "introductory step with Duolingo".)

Yet Duolingo claims to be different for a number of reasons. As with any entrepreneurial endeavour, an element of either prescience or serendipity is needed, depending on how you view it. In Duolingo's case, the initial decision to be primarily mobile-phone based also happened to coincide with an uptick in smartphone use and app downloads. But the reasons it has proved so popular – it has 200 million users worldwide – go beyond fortuitous timing. For one, Duolingo is free to download and free to use. Secondly, it refuses to do what Bob Meese, Duolingo's business VP, calls "gate content". Put another way, the company avoids ordering content into a pay-to-play hierarchy. Everyone

Facts & figures:

Founded: 2011
Headquarters: Pittsburgh, Pennsylvania
Employees: 110
Users: 200 million
Courses: 77 (in 31 languages)
Venture capital raised: $108m (€88m)
People learning Irish: 4 million
Native Irish speakers: 100,000
Classrooms using Duolingo for Schools: 300,000
Volunteers who built Swahili course: 3
Outfits Duo has dressed up in: 100+

gains entry to the same learning trajectory; the only variable is whether users choose to part with cash in order to avoid the advertising and take advantage of other sweeteners, such as being able to use the platform offline.

Winner takes all

Perhaps the biggest shift, though, is how Duolingo presents the learning of a foreign language. Which means no rap on the knuckles from Madame Brown for failing to conjugate the subjunctive (even if you do have to grapple with the mood swings of our little feathered friend). Instead the software is what Meese calls "game-like", meaning many users refer to being on Duolingo as "playing".

For Orange County-based linguist David J Peterson, the gamification of the app is what appeals. "It's basically just covert instruction," he says. "All you're doing is getting fluent sentences and you're figuring out the language as you go along. I think that's a brilliant way to do it." Users gain points after completing their daily language tasks (being asked to translate what can be quite bizarre computer-generated sentences – see illustrations). The points stash is unlocked from a series of treasure chests, while each element of the "tree" – the way the evolution of your learning is displayed as you advance along the course – has strength bars that diminish if neglected for too long.

Von Ahn claims that all of these details tap into the core competitiveness of humans. From a conference room in the company's open-plan HQ, he explains how in the early days he used to get inundated with emails from users who had lost their "streak", a reference to the back-to-back run of using Duolingo every day that is an essential part of the app's reward system. They'd write in about having to travel for work or an illness in the family and beg to have their streaks reinstated, solemnly claiming that they would never again be so negligent. Von Ahn, of course, ignored them but he soon realised that he was missing a trick: users' visceral yearning to keep a perfect run could be monetised. Now he says the company makes between $4,000 and $5,000 (€3,200 and €4,000) a day simply by offering people the one-off chance to regain their streak for a small fee.

Indeed, browse any of Duolingo's online forums and this competitiveness is quickly apparent. One user, JasonMey, offers tips for keeping a streak for two years ("Don't find time, make time. Let Duolingo addict you. And above all else, always be learning"); DouglasGallow, meanwhile, laments losing his streak after 434 days ("It was nice while it lasted but the streaks are only a number").

Can we fix it?

If the US is a technocracy then Von Ahn is one of its princes. He may not yet have achieved the status of king (for now that's a role for the Googles of this world) but at the very least he represents a radical shift in Pittsburgh, a city that has the dubious moniker of being part of the country's Rust Belt. Duolingo's presence is proof of just how wide the US's technology orbit has grown while also being a rallying cry for a certain ilk of "yinzer" – as Pittsburghers are known – keen to develop a side of the economy beyond its blue-collar roots. At a recent event at the company's office called Pittsburgh Loves Tech – a casual get-together featuring craft beer, *pierogi* (Polish dumplings that the city has adopted as its own) and plenty of chat about maximising the fledgling sector – a crowd of inventors and fin-tech types tried to pitch Von Ahn ideas as he circulated among the crowd. Later, as a panel chat that included Audrey Russo, president and CEO of Pittsburgh Technology Council, turned to issues of gentrification and cities' desirability, would-be entrepreneurs whipped out notepads and laptops to jot down his thoughts.

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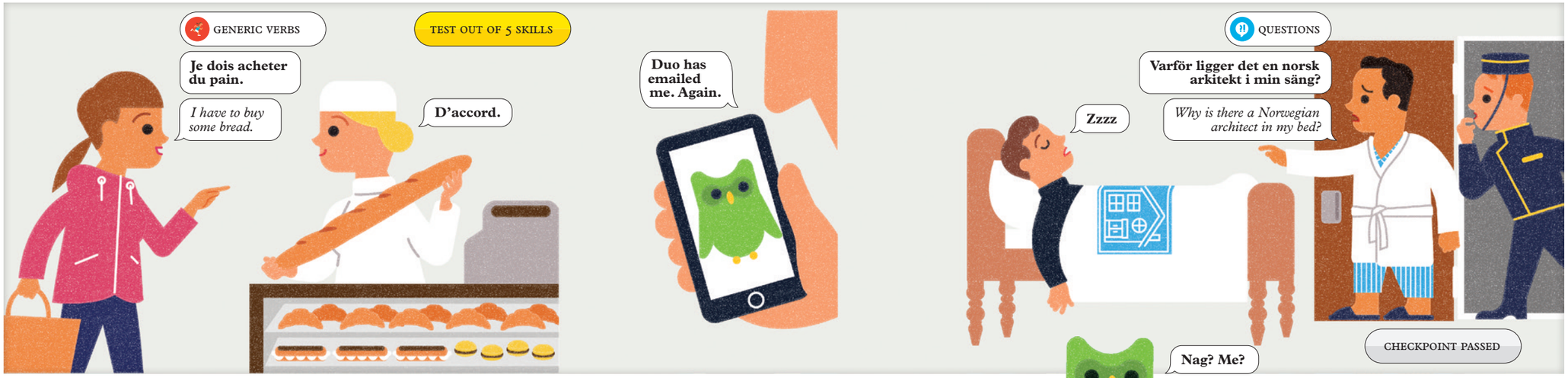
With his quick-fire speech and glasses, Von Ahn is every inch the geek-chic character you might expect to be behind a successful start-up. At times he can come across like a computer-obsessed teenager who never grew up, unafraid of off-the-cuff remarks and speaking his mind (which seems to focus on frustration at the lack of Mexican restaurants in Pittsburgh). Myra Awodey, Duolingo's lead community specialist and there almost since the beginning, puts it another way. "He won me over," she says. "He's a character and doesn't mince his words. Sometimes he puts his foot in his mouth but he's a great leader."

Yet Von Ahn is also one of those rare types who is constantly thinking about how to improve things – and he seems to come up with ways of making it happen. Arriving in Pittsburgh to study computer science at Carnegie Mellon University (CMU) – one of the best institutions in the country for the discipline – he ended up staying on to become a faculty professor. His eureka moment came in 2000 when the chief scientist from Yahoo, at the time the biggest website in the world, came to give a talk about 10 issues that the company was having difficulty solving. One of them was the fact that malicious software was taking advantage of Yahoo's free email service to create millions of accounts. What if there was software that could differentiate between human and robot, Von Ahn pondered. And then he promptly found a solution.

Von Ahn's team at CMU developed an idea for verification that was impossible for machines to crack. It asked people entering a website to decipher an image of slightly distorted letters that appeared on screen and then made them type those letters into a box. Pass the test and you were authenticated as being a human; fail – as the machine spammers did – and you were blocked from creating multiple accounts. And so Captcha (or Completely Automated Public Turing test to tell Computers and Humans Apart, to give it its clunkier name) was born. The idea quickly became a benchmark for blocking spam on the internet and the subsequent company that Von Ahn created, reCaptcha, ended up being sold to Google for an undisclosed sum in 2009, giving Von Ahn a tidy windfall – when he was still in his twenties – and the second of two ideas he sold to the technology titan. (The first, a few years earlier, had been an online picture game that created a slew of user-generated keywords for labelling images).



Von Ahn says that after selling his two previous companies he was motivated by something different. This time, he says, he wanted "to do something to help the world"

Although Duolingo's CEO claims that he's never been driven by the need to be an entrepreneur, it's a common theme in his career. From a precocious 12-year-old who thought of providing a free gym by getting exercisers to generate electricity as they worked out that could then be sold on ("It turns out that this is a very bad idea; it doesn't work!") to reCaptcha, they are what Von Ahn refers to as "schemes": the idea of getting people to do additional tasks to the one they're already doing. In the case of reCaptcha, the program actually got people to type words that had been scanned from books that machines were having problems reading. In the process – and using the power of the crowd – the software helped digitise entire archives of *The New York Times* while also guarding against unsolicited bots.

When Duolingo started, it followed a similar model. Instead of adverts on the site, the app made its money by asking language learners to help translate fragments of articles for the likes of CNN. Again, it was the power of the crowd that ensured quality control. But Von Ahn soon turned against the idea. For one, he called it a "race to the bottom" as other translation-service providers began to challenge the prices he charged his clients in what he says was a "shitty business to be in".

He also found that instead of innovating the language-learning part of the business, his team was increasingly allocating the lion's share of its resources to improving the speed and accuracy of translations. Somehow they'd lost sight of the mission. In 2014 a decision was made to reorientate the app and, two years later, adverts and in-app purchases came in. The subscription service was launched last year.

Moral motivation

Duolingo's HQ is exactly how you'd expect a technology start-up to look. There's a big flat-screen TV with seating nearby that acts as a sort of living room (complete with games console, of course). There's pool and ping-pong in the dining area and a shuffleboard table in one of the conference rooms. There is a complimentary daily lunch and endless options of soft drinks, flavoured waters and snacks. There's brightly upholstered furniture, people working from standing desks and the occasional person gliding past on a push scooter. There's the propensity for in-house lingo, from the 36-member "Duonut" group of doughnut appreciators to the annual "Duoversary" that marks the company's foundation. And there are the toothbrushes stuck to the mirrors in the bathrooms that either show how hard-working Duolingo's staff members are or betray an office culture of deep respect for oral hygiene.

But despite the perks and the gimmicks, Von Ahn says that after selling his two previous companies he was motivated by something different. This time, he says – suddenly solemn – he wanted "to do something to help the world". He knew that this meant education but he wasn't initially sure what the focus would be beyond that.

When the languages idea finally stuck, it seemed to make sense. Von Ahn had grown up in Guatemala, after all, and had seen how learning English had "made a difference in people's lives" in terms of opening doors and creating job opportunities. If Duolingo had been focused on another sort of education – a science, say – that would have opened up a whole world of complications due to competing curriculums in different countries. Unshackled from having to work with schools or universities, Von Ahn says Duolingo has been able to grow quickly as a result – because everyone can learn a foreign language in the same way. And then there's the fact that "languages are one of the very few things that people want to learn outside school". Unlike more formal studies that require what seem like endless further steps in order to achieve anything, the effects of learning a language are almost immediate. Even if it's only being able to order the right type of coffee while on holiday.

Business class

The million-dollar question, though, is just how effective Duolingo can be as a learning resource. To answer that question, Von Ahn starts to quote the European Framework of Reference for Languages – a guideline for measuring language proficiency – and says that for some of the courses available on Duolingo the app can get people from zero to B1, an "independent" level that is one below fluent; for others, the end result skews more towards intermediate. Not that complete language domination is the end-goal for everyone.

Emily Riley teaches Spanish at Brashear, a high school on the south side of Pittsburgh. It's imposing – a vast red-brick building with slits for windows – and feels more compound than educational establishment; many of the children have difficulties and you pass through a metal detector at the entrance. When the bell goes between periods, security guards blow whistles and shout at ambling students to hurry to their classes. For Riley, what can be a combative day with her 14 and 15-year-old students turns into a quiet one when she's able to borrow the school's laptops once a week and have the children log on to Duolingo's website. It gives her the chance to take a student aside who might have been absent for a while and give them one-to-one catch-up time.

The platform's popularity may have something to do with young people's addiction to technology but she says it also goes beyond that. With so many disruptions in class, building vocabulary and verb endings can be tough – but then Riley started using Duolingo. "The conjugations were just coming to them," she says. "The only explanation I had was that they were doing Duolingo and they were seeing the material before we'd even reached it in class."

Talking the talk

Nonetheless, a language teacher's relationship with software such as Duolingo can be complicated. And while many in the field still argue that applications of its sort are only useful for complementing a more formal

ESSAY

I'm hoping for a future perfect

by Andrew Tuck

OK, I admit it. I paid. Obsessed with maintaining my (actually meaningless) 270-day streak, I handed over £11 [€13] to have it restored after a flight to Asia threw out my calculations. But then, rather than restoring my precious accurate digits, Duolingo went haywire and gave me back a 340-day streak (equally distressing). But, yes, I am proof of its addictive qualities.

Now to ensure that I stay on track it's the very first thing I do every morning. My dog, curled up next to me, awakes bemusedly to hear me declare in stumbling Spanish that "the dog eats the lettuce" or that "I do not support any dictatorships". For a half-asleep bed-partner, Duolingo can make for a perplexing start to the day.

The mission with Duolingo is to complete a "tree" of lessons in the belief that, by the time you get to the end, you will have a good mastery of the basics. But I have deliberately not finished off the tree, holding off on the last few lessons. The reason? I'm not sure, in spite of all those lessons, that I am ready to finish. Alongside Duolingo I have started taking real-life lessons and have found it difficult to translate those endless pillow-session lessons into face-to-face conversations. Sure, I know how to say "the elephant eats a lettuce" but then I struggle to describe my day.

Plus, all the Spanish on Duolingo is Latin American and my teacher is Spanish – so there are lots of words that raise a quizzical eyebrow. I won't give up on the owl but the app can make you believe you are cleverer than you actually are. And it's not without its glitches. As for streaking? I'd pay another £11 to get back the real number I had before. — (M)

type of learning, for some educators the online model may one day replace the need to have human teachers altogether. Indeed, for foreign-languages professor Robert Godwin-Jones, speaking over the phone from Virginia Commonwealth University, the brave new world of learning a language digitally represents "a threat to my livelihood". He points to how many people taking language courses in the US have built a level of proficiency "in the wild", especially as artificial intelligence and interaction with native speakers (or at least bots pretending to be native speakers) continues to improve the software.

Which means Duolingo's focus on growing its product makes sense, even if, according to Bob Meese, the platform isn't yet profitable as it continues to spend on expansion. As a side business the company is developing its Duolingo English Test, a purposeful attempt to disrupt the world of language certification beyond the staid traditional players by moving the examination online (more than 270 US universities now accept it). And then there is Duolingo's expanding stable of languages. Beyond the core ones developed in-house (French, Spanish, German and English), Duolingo also uses volunteers who, motivated by passion alone, have helped get lesser-spoken languages onto the platform that wouldn't make financial sense for Duolingo to develop itself. Osama Haggag and Oisín Ó Doinn, for example, have been instrumental in developing Arabic and Irish courses, respectively, the latter now claiming over four million users on Duolingo (that's more than the number of native Gaelic speakers inside Ireland, according to lead community specialist Myra Awodey). The learning isn't limited to official languages either: Esperanto, which, according to Duolingo's website is a constructed language "created by a Polish dude (Zamenhof) a couple of centuries ago", has more than one million learners; *Game of Thrones* tongue High Valyrian is also on the app, developed by (to borrow Awodey's phrase) "rock-star linguist" David J Peterson; and *Star Trek* language Klingon was released into the Duolingo universe in March.

Yet for all the bold moves to democratise the nature of language learning, one maxim still rings true: no amount of app usage can replace the back-and-forth interaction of a class or the intense learning of full immersion in a country. And, while Von Ahn begrudgingly accepts that this is the case for now, he also says that it doesn't always have to be that way. His lofty mission is to improve the software to such an extent that one day it might be able to make you completely fluent. If that moment comes it has the potential to radicalise language education and even do away with the need for the traditional overseas exchange programme. Whether that's an unalloyed good is debatable but one thing's for sure: we'll be seeing a lot more of a certain passive-aggressive owl (with or without the Wonder Woman costume). — (M)

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