Case Study: Voxy "English for Software Engineering"

The Conception and Creation of an E-Learning English-Language Course Tailored to Learners' Real-World Needs

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Abstract—**This case study provides an overview of Voxy's language-learning platform and the needs analysis conducted to determine the content required for its "English for Software Engineering" course, which received a 2018 International E-Learning Award in the Business Division. This study documents Voxy's methodology and theoretical underpinnings. Further, the report outlines the rationale behind using authentic, real-world content, how the company identified the English skills that software engineers require to do their jobs, and how a team of working software engineers provided both guidelines and raw materials to help develop the course content.**

Index Terms—**software engineering, e-learning, second language acquisition (SLA), language learning solution**

I. Introduction: Voxy's methodology and the need for the "English for Software Engineering" course

A. About Voxy and the role of authentic content in language learning

Voxy is a flexible language-learning solution that has been used successfully by over four million learners and hundreds of clients in more than 150 countries. The company has drawn on established best practices from the fields of Second Language Acquisition (SLA) and Technology-Mediated Instruction to identify three core ideas that form the basis of its theoretical underpinnings: 1) Language learning is acquiring a skill, not studying a content area, and it works best when it is personalized [1]; 2) A blended approach is the most efficient and effective method of instruction [2]; 3) Learners require access to authentic content, the opportunity to produce the language themselves, interactive practice, and ongoing feedback [3].

Voxy's approach is needs-based at both the level of the learner and the learner's sponsoring organization (i.e., workplace, school, university). The platform provides a flexible solution with a combination of autonomous, online instruction, regular assessment and testing, and synchronous classes offered both individually and in small groups. Every part of the course—from the content to the number of classes and the topics covered in the live instructional sessions—is flexible and adapted to each organization's curricular needs, as well as each learner's proficiency level, learning goals, and performance.

Using authentic, real-world content is the most effective and efficient way to give learners the input they need for second language acquisition [4]. At the outset of instruction, the platform determines what job tasks learners need to accomplish in English and tailors instruction accordingly, employing a combination of proprietary adaptive technology and human intervention. Using a wide-range of real-world materials, from business emails and video recordings of client meetings to recorded phone conversations, learners acquire the English they need to do their jobs. Voxy's patented content-processing engine allows the company to take authentic English materials and turn them into lessons that adapt to learners' needs in real-time, resulting in personalized instruction that leads to faster learning outcomes.

The Voxy platform currently has over 60,000 hours of authentic English content, which is supplemented daily by the company's curriculum team via the company's content-processing engine. All of the content comes from real-world sources, and includes media ranging from genuine news articles to videos of real people ordering food at a restaurant to recordings of actual business meetings, so that learners have the communicative and intercultural competencies they need to thrive in a global working environment.

B. The "English for Software Engineering" audience and course overview

With over 21 million developers across the globe, software engineering is one of the world's fastest-growing professions. English has already become the most widely accepted language of international business, and is central to a career in software development because almost every programming language borrows both commands and syntax from English. There is a huge demand for software engineers to communicate in English in order to work in the U.S. or overseas for U.S. companies, making "English for Software Engineering" a requisite for Voxy's growing curriculum.
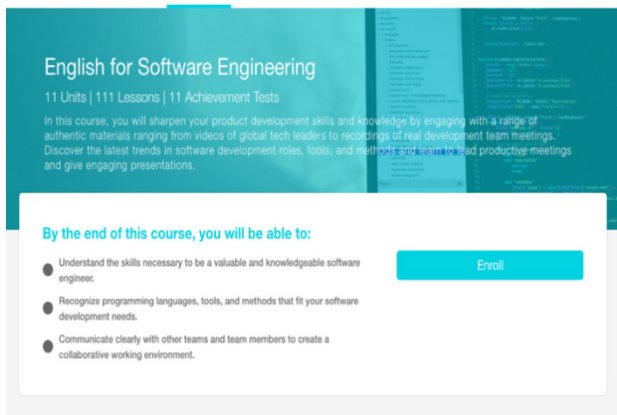
Figure 1. Voxy created its "English for Software Engineering" course in response to both learner feedback and the growing demand for software engineers worldwide

"English for Software Engineers" uses a web and mobile platform to provide highly contextualized English language instruction to current software engineers as well as engineers in training. Learners acquire the English they need to perform their job duties while simultaneously sharpening their product development skills and domain knowledge by engaging with a range of authentic materials, spanning from videos of global tech leaders like Apple, Google, and Microsoft, to recordings of real development team meetings to product documentation. They also discover the latest trends in software development roles, tools, and methods and learn to lead productive meetings and give engaging presentations.

II. CONDUCTING THE NEEDS ANALYSES

A. Course Rationale

Voxy courses and content are developed based on learners' real-world needs, which are identified through multiple channels. Based on students' responses to the initial platform needs-analysis form, the Voxy curriculum team determined that more than half of the platform's users were interested in technology. To drill down further, the company created a needs-analysis form for teachers of learners in private classes (conducted in virtual classrooms) to ascertain what specifically about technology would help their work and daily life. Voxy has thousands of entries from these learners, which reveal that beyond general business English, engineering is a primary focus area. (It's important to note that this is a not a course to train someone to become a software engineer; it's one for those who are already software engineers, or are training to become them, to learn the English necessary to be able to do their work.) This feedback, coupled with the exploding global demand for software engineers, compelled Voxy to create the course.

B. How Voxy determined the course content

Voxy turned to its own in-house software engineering team, including employees in Sao Paulo, Brazil, and New York, NY, to determine what software engineers need to be able to do in English. Voxy's course developers observed and interviewed the engineers, checking in with weekly questions—for example, which programming languages to include—to ensure the course content was

entirely applicable and up-to-date. The course developers considered some of the tasks required of global software engineers, such as giving presentations and attending meetings in English at global companies. Their ability to discuss jobs and responsibilities is also crucial: If they're trying to change jobs, they need to be able to talk about both what they do now and what they'd like to do in the future.
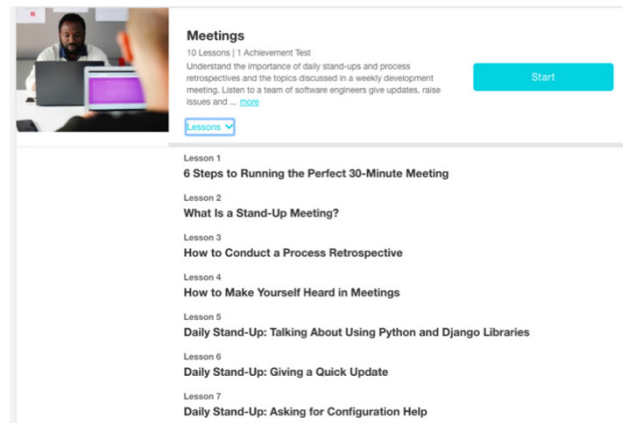

Figure 2. Unit 7 of Voxy's "English for Software Engineering" course teaches learners how to organize meetings and includes audio of authentic conversations

In keeping with its authentic-content ethos, Voxy also included hard-to-find, genuine audio and video from its software engineering team's meetings and presentations, as well as text-based conversations conducted by team members during their workdays via internal messaging tools like Slack. These rich language sources were recorded and edited to create the course materials, and are key differentiators between Voxy's course and others: Learners actually see how software engineers are using the language in real life.

III. NEXT STEPS

Voxy's "English for Software Engineers" course is the first of its kind to offer the real-world, needs-based content that these in-demand professionals use to do their jobs in English. Given that the course is relatively new, the company's next step is to test its effectiveness by measuring the English proficiency gains and speed of a group of engineers who are using the platform.

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