

## Challenge

In the field of language learning, the number of ready-made educational applications and contents using AI-based speech recognition technology, character recognition technology, speech synthesis technology, and translation technology is increasing. These are provided with the latest AI technology as a public API, allowing developers to programmatically develop their own applications and content. However, most of these off-the-shelf AI teaching materials have been developed with fixed content based on their own teaching methods, specializing in one or two specific AI-APIs.



Therefore, it is necessary to create the teaching materials currently in use with AI-API without programming.

Furthermore, by increasing the portability and obtainability of the created original AI teaching materials, it is able to learn learning know-how from the language learning community that shared new learning methods and teaching materials for many people.

## Solution

Torepa is a language learning environment that integrates the authoring function, execution function, and sharing function of AI teaching materials as a Web application.

- The authoring function allows you to incorporate multiple highly acclaimed AI-APIs as teaching material components into your own language teaching materials.
- Execution function is a content player that learns the created content and obtains AI evaluation feedback.
- The sharing feature is a community feature that allows you to share that content with other learners.

In order to deliver this Torepa to as many users as possible, the QTI-PCI format has been adopted for the content export function, portability has been significantly improved, and the LTI-Tools interface has been added to significantly improve obtainability.

## Learning Impact Outcomes

It is required to improve practical skills represented by four skills in Language learning. By feeding back detailed AI diagnosis, Torepa can use learning evaluation as an incentive for learners and create added value in learning society, such as introducing objective indicators to language learning evaluation and utilizing e-portfolio that has accumulated results. We have introduced ingenuity into e-learning so that the learning evaluation of e-learning can lead to incentives for learners and the creation of added value in learning society.

In order to improve the learning outcomes of the four language skills, Torepa analyzes, designs, develops, implements, evaluates, and improves quality education based on the theory and insight of "aware learning" by reading aloud with AI. We are working on quality assurance of e-learning that will lead to content development and improvement of learners' self-mentoring.

- Torepa that give students and teachers opportunities to participate in effective experiential learning that is better than traditional alternatives.
- Torepa provides students with self-paced learning, feedback, and adaption with the help of digital assessment while providing the teacher with information on individualized student progress.
- Torepa's technology infrastructure enables content development, search, delivery, and mobile device efficiency.

## Return on Investment

By supporting QTI for Torepa content, you will be able to easily use the AI language practical test with the international standard CBT system. In addition, by supporting LTI, it will be possible to start Torepa's AI language practical learning environment from the international standard LMS system through the LTI interface.

Based on IMS Technology Standard we are proposing e-learning that promotes learners' learning and enhances learning effects using Torepa that is a technology that makes it easy to use AI technology through mobile devices such as Smartphone and Tablet.

Adoption of IMS Global international technical standards provides new business opportunities for the educational ICT industry. The adoption of international technical standards has been devised to incorporate social cooperation into e-learning, such as the formation of a learning ecosystem that spreads to society through international exchange, cross-disciplinary collaboration, industry-academia collaboration, and so on.