Narrowing the digital skills gap for youth with disabilities

By giving young people with special needs a foundation in digital skills, computational thinking and computer science, Junior Achievement Korea helps underserved youth prepare for future careers

Junior Achievement Korea (JA Korea) partners with private companies, public schools and South Korea's Ministry of Education to run experiential learning programs in computer science (CS), digital skills, financial literacy and entrepreneurship for about 130,000 students each year. These efforts ensure more youth will grow up with the confidence and tools to design their own economic success and thrive in the 21st century global economy. Today, the nonprofit focuses particularly on reaching underserved groups, including girls and youth with disabilities.

The challenge

South Korea is working to increase the digital skills of all its youth, but young people with disabilities need even more support: half of all youth with disabilities don't have solid digital skills, according to research by Korea's National Information Society Agency. This gap multiplies the hurdles people with disabilities already face in finding jobs and contributing their skills, ideas and talents.

In 2018, CS education became mandatory in kindergarten through high school in Korea, but as in many countries, a shortage of teachers trained to teach computer science makes this requirement hard to fulfill. Even fewer educators are qualified to teach CS in special education classrooms. When the Ministry of Education developed a national CS curriculum, it did not make specific accommodations for students with physical, mental or developmental disabilities.

If Korea doesn't address these challenges, "we risk broadening the existing digital skills gap, which limits not only individuals' aspirations for future careers but also the Korean economy as a whole," says Moonhwan Yuh, COO of Junior Achievement Korea.

> **"Computer science is not just technical training; it's a way to open doors to the future."**
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> *-Moonhwan Yuh, COO of Junior Achievement Korea*

Striving for computer science education for all

When designing digital skills education for people with disabilities, JA Korea has had to be flexible. "The courses greatly vary depending on the type or severity of the students' disability," says Moonhwan. "That's why we need instructors dedicated to these courses: to consistently provide this education."

Most special education experts don't have a degree in CS or other technology fields. That's why JA Korea is developing a national curriculum to customize CS education to youth

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with visual or hearing disabilities, as well as youth with other disabilities. This strategy to build teacher capacity ensures that already busy teachers don't have to create lessons from scratch or try to learn an array of digital skills, such as cybersecurity or app development, on their own.

The nonprofit focuses on overcoming challenges for students who struggle to learn CS via a standard curriculum. For example, with the support of Microsoft, JA Korea developed a program called Nise to enable people with visual disabilities to "read" code. And for students who are deaf or hard of hearing, lessons plug into a text interpretive service. This approach is already making a difference. One second- year high school student who has a hearing disability initially didn't want to learn to code. But after going through the JA Korea-designed CS class, he realized technology could help him overcome communication barriers—for himself and others. He now wants to study IT in college and design tools to help an entire community of those with communication disabilities.

Finally, JA Korea organizes volunteers to assist teachers and introduce students to a variety of careers in technology. With even more knowledgeable adults in the room, professionals, teachers and aides can work one-on-one with students who benefit from extra support. The result: The class moves at the pace dictated by the students, rather than a curriculum made for general education, which makes students more excited about a subject that affects virtually every industry in the modern economy.

> JA Korea-trained educators will teach digital skills to **15,000** students in the **2019-2020** school year

Promising Practices for Deeper Impact

Educate adults first. "The biggest challenge we face is to increase understanding that youth with disabilities need digital education," says Moonhwan. The nonprofit gets buy-in from parents and teachers by demonstrating how computational thinking and skills such as programming can translate into fulfilling, Well-paying jobs for people with disabilities. It is also partnering with Korea's Educational Broadcasting System to run teacher-aimed campaigns on the in-demand skills sought by the country's business community.

Build capacity at scale. With the support of Microsoft Philanthropies, JA Korea is in the process of upskilling more than 500 special education teachers. These educators will go on teach thousands of students, which expands the organization's impact faster than teaching students directly.

Focus on logic and computational thinking.
Technology, software and platforms change constantly. That's why JA Korea focuses on the foundational concepts of computational thinking: problem-solving by breaking down challenges into small steps, which will serve students their entire lives, regardless of their career path.

Make digital skills fun—and relevant.
The JA Korea- developed curriculum for students with disabilities includes hands-on projects, platforms young people already love, and innovative lessons that tap youth's creativity and problem-solving. For example, JA Korea developed a fictional storyline that students were stranded on Mars. Students created machines to send a request for help, sense temperature and humidity, and turn light switches off and on—all using their newly acquired programming skills and Arduino kits.

Create opportunities for continued learning.
Throughout its curriculum, JA Korea emphasizes job opportunities by introducing students to industry professionals, offering a unit on careers in technology, and making the connection between skills students learn in the classroom and in-demand jobs.

> Microsoft is working with nonprofits to ensure every person has the skills, knowledge, and opportunity they need to succeed in the digital economy. Learn more aka.ms/skills-employability