99 Tips in My Pocket
In-Class Use of Mobile Phones for Students with Disabilities

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Current situation of special education in Japan

There are many special schools for students with physical, visual, hearing, intellectual disabilities, and poor health.

Number of schools (number of students)

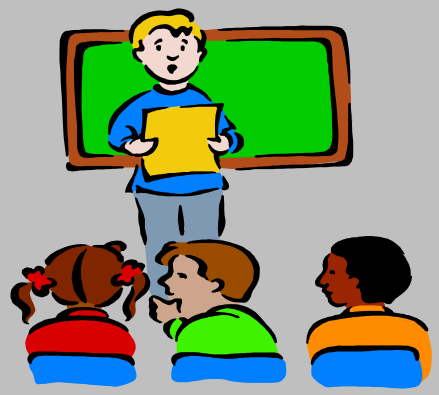
Special schools	1,030	(105,000)
Elementary schools	22,258	(7,064,000)
Junior high schools	10,864	(3,600,000)

Current situation of special education in Japan

50□ of students with physical, visual, hearing, and intellectual disabilities are integrated into regular education.

104,592 students with the disabilities in special schools
104,544 students with the disabilities in regular schools

Meanwhile, 680,000 students with learning difficulties caused by Dyslexia, ADHD, and Asperger Syndrome are integrated into regular schools.



Use of Assistive Technology in Japan

- Special school teachers are becoming positive about assistive technology (AT).
  - AT is effective for special education
  - However, AT is expensive

- Regular school teachers are still negative about AT
- AT may disturb rehabilitation and education
- Higher education schools do not provide enough accommodation in the class and examination for students with disabilities

Present situation of mobile phones in Japan

Number of mobile phone subscribers

114,798,900 Telecommunication Carriers Association (2010)

Mobile Phone penetration rate among students

- Elementary schools 17-22%
- Junior high schools 35-54%
- High schools 92.5-93%

Benesse Education R&D Centre (2004)

Anxiety toward mobile phones among school teachers and administrators

They tend to restrict the use of mobile phones among children in order to avoid their access to unwanted information.

Year 2008: Japanese government made a public proposal “no mobile phones for elementary school pupils” to prevent harmful information

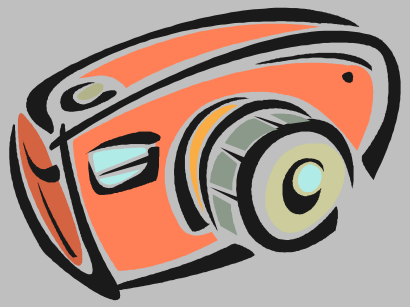
Year 2009 (June): Children’s act (revised) in Ishikawa, Japan:
Parents and family are asked to prohibit school-age children (age under 15) from using mobile phones except for the cases of the prevention against disaster and crimes, or other special cases.

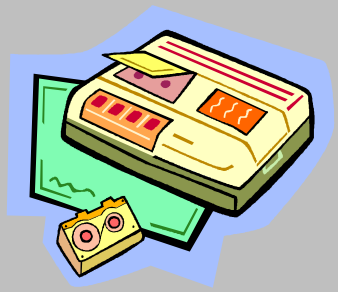
Government survey (Dec. 2008) showed over 90% of elementary/junior high schools prohibit students’ use of mobile phones at school

Potential of mobile phones as a tool in special education

- Widely used and easy to get
- Many people always carry with them
- Can run on batteries during in-class use
- Needs little space on the desk
- Many useful features for educational settings are built-in

Many useful features for educational settings



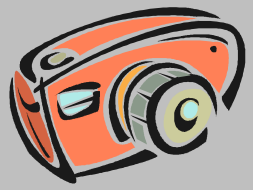


Universal design and accessibility features

Mobile phones are becoming accessible for people with disabilities.

- Tactual cue for blind
- Speech output for blind
- High contrast key and screen for low vision
- Scanning function for physical disabilities
- Touch screen for physical disabilities
- Products/settings with limited functions for intellectual disabilities

Device Accessibility & Activity Accessibility

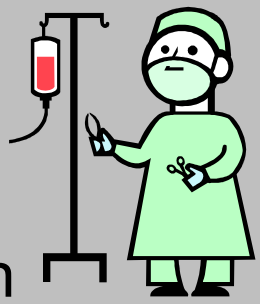


Activity Accessibility
Camera
Audio recording
Alarm

Device Accessibility
Voice Output
Magnification
Scanning Input

From Medical to Technological Thinking

Teachers and parents try to treat disability with medical models rather than compensate disability using technology.



Regardless of the type of disabilities, technology can be a solution to overcome difficulties. For example, taking a note is difficult for a person

- with physical disability
- who is deaf or hard of hearing
- who is blind or have low vision
- with intellectual disability
- with dysgraphia

Recording device/function can help all the disabilities above to take a note.

Technology raising the children's potential

Meets a autistic boy Aki in 1995
Non-speaking, difficult to have an eye contact, and difficult to communicate

- Aki communicates using a PDA, a pager, or a mobile phone
- Aki often finds text-based instructions easier than oral ones
- His independent living was supported by IT devices including calculators and electronic dictionaries

→But dealing with many devices was troublesome

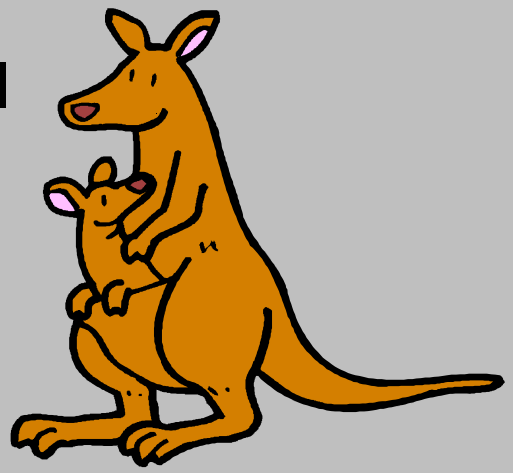
99 Tips in My Pocket Project overview

Purpose

Collecting information about good use of mobile phones for children with disabilities in their learning and daily lives, and creating a textbook about the good use of it

Method

Five areas in Japan are chosen for the experiment.
30 mobile phones are provided and used
by elementary, junior high, and special school children with disabilities in their classes.
Period: June – September, 2009



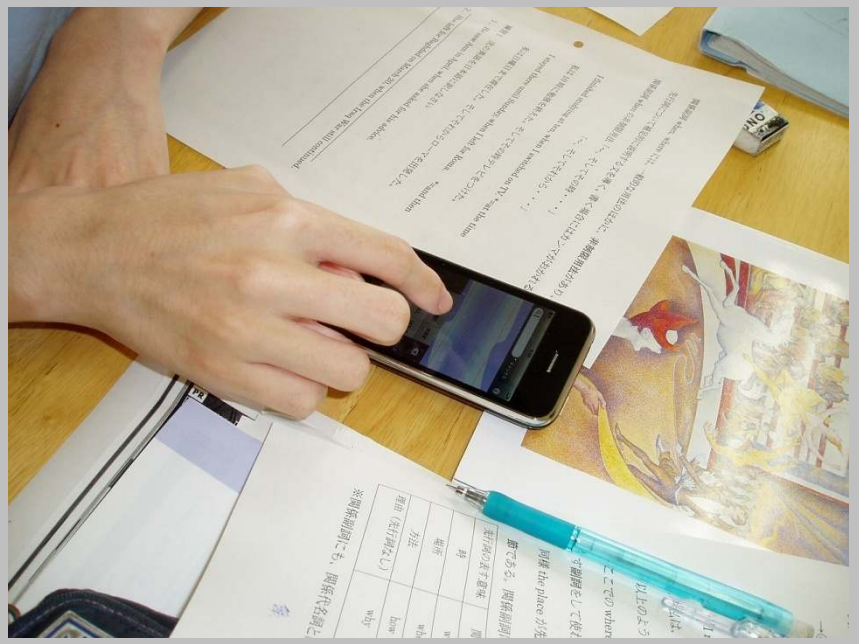
Students and their Strategies in Japan

- **Hana has ADHD** and often leaves behind items needed in school. Now she is using the camera in her phone to take pictures of what is required. She is able to compare the list of pictures with what she has in her bag to make sure nothing is forgotten.
- **Mayu has a visual impairment** and finds it hard to use the landmarks. She uses the GPS feature to find her way or to send an email to a friend to ask for help.

- **Taka has autism** and often panicked due to his time insensitivity; he did not understand how long he had to wait or be in class even the number of minutes left was told. Graphical timer of a mobile phone helped him to understand time.

Miki has Dyslexia and Dysgraphia.
Text reader helps him to read books.
Memo features of mobile phones enables his to write in a proper manner and helped to build his self-confidence.

- **Jun has** Muscular Dystrophy and was not able to use printed dictionary because of his motor disability. But, he can access to electronic dictionary on the mobile phone.



The Booklet

Mobile Phone strategies to support Learning for Students with Disabilities

“The 99 tools from the magical pocket of Aki-Chan”

Put strategies first

rather than the type of phone.

English version is available.

Keep it simple!

- Take universal features – categorise Communication, Learning, Management Skills

Features

Usage

Disability

Strategy

C - Communication	L - Learning	M - Management Skills								
Feature	e-mail			camera				memo recorder		
Usage	Communication with others	Alternative for handwriting	Asynchronous/time to support proof reading & comprehension	Communication with others	Alternative for handwriting	Memory Aid	Alternative for Viewing	Communication with others	Alternative for handwriting	Memory Aid
Page numbers	9	9	9	10	11	14	no page number	10	11	14
Intellectual Disabilities/ Autism with Intellectual Disabilities	Written messages can be used as an alternative to spokenn messages **C**		Provides time to read and understand. **C**	Pictures can be used as an alternative to spokenn messages and to help understanding **C**	Pictures acts as a substitute for written information and handwriting **L M**			Recorded memos by others used for communication **C**	Record your own memos instead of using handwriting. **L M**	Record your own memos to aid recall **M**
High Functioning Autism/ Asperger's Syndrome	Written messages can be used as an alternative to spokenn messages **C**			Pictures can be used as an alternative to spoken messages and to help understanding **C**				Recorded memos by others used for communication **C**	Record your own memos instead of using handwriting. **L M**	
Dyslexia/ Dysgraphia		Typing/ Word Prediction can be used as an alternative to handwriting **C L M**			Pictures acts as a substitute for written information and handwriting **L M**				Record your own memos instead of using handwriting. **L M**	Record your own memos to aid recall **M**
ADHD			Provides time to concentrate and proofread content. **C**			Pictures acts as a substitute for handwriting **L M**				Record your own memos to aid recall **M**
Motor/ Dexterity Difficulties		Typing/ Word Prediction can be used as an alternative to handwriting **C**			Pictures acts as a substitute for handwriting **L M**				Record your own memos instead of using handwriting. **L M**	

Features

- E-mail
- Camera
- Memo recorder
- Notes
- Internet search/Dictionary
- Time/Calendar/Reminder/ Alarm
- Audio Calls/Speaker phone
- GPS
- Digital Money
- Text to speech
- Magnification /Text enlargement
- Contrast levels
- Prediction
- Handwriting recognition
- Speech Recognition
- Vibration

What's in the name?

The project name represents the mobile phone as a 'magical pocket' filled with tools – each time you go into the pocket you can pull out a strategy that may help support the learning and participation in the classroom, of a student with disabilities. The aim of the project is to conduct research as well as raise awareness of the use of the mobile phone to support the independence of these students in their daily lives.

Our Strategy Providing ARU-Tech

Most teachers think that Assistive Technology might be necessary for students with disabilities.

Students already have commonly available technologies, such as the mobile phone, PC, digital camera, etc.

We call these common / mainstream technology “ARU (existing) -Tech” in Japanese.

Knowing and using ARU-Tech would be important to help all students with disabilities in their learning independently

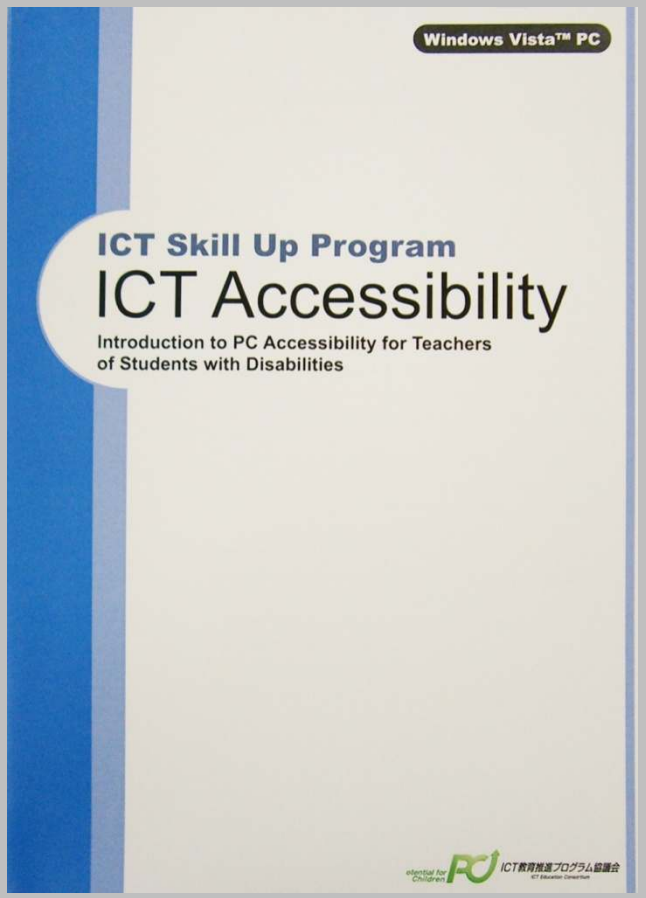
ICT accessibility project from 2004-2007 in Japan

- Windows OS includes many useful features for PWD that accords with Rehabilitation Act of the US
- However, these features do not attract a good deal of attention in the US and UK
  - Active AT market by third party companies
  - Support for AT provision based on insurance system
- Limited/No support for AT provision in many countries in Asian-Pacific area

→ Widespread use of accessibility features of PC

- Over 1,000 participants, mainly school teachers, have been trained in Japan
- Microsoft Asia supported the English translation of the textbooks
- Seminars conducted for Asian countries

→ A scheme for AT provision



ICT Accessibility Textbook

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