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The education system

- Early childhood education is for ages 3 to 5 years (Kindergarten)
- Compulsory education is for ages 6 to 15 years (elementary school is 1st to 6th grade, lower secondary school is 7th to 9th)
- Upper secondary schools (general or vocational) is from 10th to 12th grade, or college of technology from 10th to 12th (and two more years for Associate degree)
- Universities (includes those offering two year short-term courses) and other specialized training colleges
- Graduate schools or professional graduate schools
The education system

- Numbers of schools (from the Ministry of Internal Affairs and Communications, n.d.):
  - 13,043 Kindergartens (national 49, public 4,817, private 8,177)
  - 21,131 elementary schools (national 74, public 20,836, private 221)
  - 10,628 lower secondary schools (national 73, public 9,784, private 771)
  - 4,981 upper secondary schools (national 15, public 3,646, private 1,320)
  - 359 universities of short-term course (national 0, public 19, private 340)
  - 782 universities (national 86, public 90, private 606)
The education system

- Assessment or examination systems by age are:
  - National Assessment Tests are conducted for 6th and 9th grade students by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) every year, which are used for the assessment of educational outcomes of compulsory education.
  - The part of elementary schools and lower secondary schools, which are mainly private and national schools, has entrance examinations.
  - Universities have entrance examinations:
    - A set of standardized tests, called The National Center Test for University Admissions, are used by the public and part of the private universities’ sector.
Government and education policy

- The 2009 ‘Haraguchi Vision’ included a plan to deploy digital textbooks to all primary and junior high school students in Japan.
- The 2013 ‘Declaration on the Creation of the World’s Most Advanced IT Nation’ listed the establishment of IT-backed educational environments and the 2013 ‘Second Basic Plan for the Promotion of Education’ listed a 100% wireless LAN adoption rate as one of its goals.
Government and education policy

- The government emphasises the need for 'Cultivation of Information Literacy' regarding these focal points:
  - practical capability to utilize information
  - scientific understanding of information
  - an attitude of willing participation in the information society

- The cultivation of children’s information literacy is adopted as a compulsory subject in ‘Technology and Home Economics’ (Technology) in lower secondary schools and 'Information' for general education courses in upper secondary schools (MEXT, 2011, p.9)
Bodies involved in ICT and education

- IPSJ (The Information Processing Society of Japan) is the largest and leading society in information technology in Japan
  - With 19,314 members (IPSJ, 2014)
- IEICE (The Institute of Electronics, Information and Communication Engineers) is also a large society relating to informatics in Japan
- IPSJ and IEICE organize FIT (The Forum on Information Technology) every year, since 2002
How education is organised in the Computer Society

- IPSJ has a ‘Committee of Education on Information Processing’, established in 1998, to contribute to development relating to research and practice on informatics education in vocational and general education of all education stages.
- The committee’s main publications and contributions are:
  - IPSJ Transactions on Computers and Education
  - ‘Peta-Gogi’, which is a section to present discussions and commentaries on informatics education in the IPSJ Magazine ‘Joho-Shori’
  - The Computing Curriculum Standard ‘J97’ and ‘J07’ as a guideline for college-level ICT education
  - The ‘ITText Series’ which offers basic knowledge about the informatics and computing field
  - A series of proposals on curricula and policies about informatics education at the elementary and secondary stages
Education resources and provision

- According to research by MEXT (2014):
  - The numbers of students per computer for educational use is 6.5
  - The proportion of schools whose ordinary classrooms have LAN connection is 85.6%
  - The proportion of schools which have electronic whiteboards is 76.4%
  - The proportion of schools which are equipped with digital textbooks is 37.4%
  - The proportion of teachers who can utilize ICTs for preparing teaching materials and instruction and for evaluation and assessment of their teaching outcomes is 80.9%
  - The proportion of teachers who can practice teaching utilizing ICTs is 69.4%
  - The proportion of teachers who can instruct pupils or students on their use of ICTs is 64.5%
Education resources and provision

- For on-line education in Japan:
  - The University of the Air, established in 1983, is a distance learning university using television, FM (frequency modulation) radio and a broadcasting satellite
  - JMOOCs (Japan Massive Open Online Courses) started its first courses in April 2014
  - Some preparatory schools offer courses via the satellite broadcasting system and the Internet
Primary or elementary schools

- MEXT determines the Courses of Study as broad standards for all schools, from kindergarten through upper secondary schools, so that they can organize their programmes to ensure a fixed standard of education throughout the country.

- Regarding elementary schools, use of ICT to improve pupils' learning is recommended in the ‘General Provision’ (MEXT n.d., p.6) of the Courses of Study for elementary schools.

- No special course for learning informatics or ICT is stated officially at the elementary stage.
Secondary or high schools

- Lower secondary schools have informatics and programming curricula as a part of ‘Technology and Home Economics’, which is one of the compulsory subjects determined by MEXT.

- Upper secondary schools have a common subject of ‘Information’, which is a compulsory subject consisting of the 2 elective subcategories, ‘Information Study for Participating in Community’ and ‘Information Study by Scientific Approach’. 
Further or vocational education

- There are specialized upper secondary schools within 8 specialized categories, and ‘Information Technology’ is included as one of the specialized categories.
- The other schools within the 7 categories (Agriculture, Technology, Business, Fishery, Home Economics, Nursing, and Welfare) have informatics curricula as a content of their main compulsory subjects.
Higher education or universities

- Most universities have subjects relating to the use and understanding of ICTs in broad terms
- But the universities which offer advanced level CS curricula are very few, except those with informatics-specialized courses
- IPSJ has published the Computing Curriculum Standard ‘J 07’ in 2007 as a guideline for college-level ICT education
Higher education or universities

(Initially published in CC2005 and updated in J07)

Fig. 1 Conceptual relationship of J07 domains.

Source: Kakeshita, T., & Ohtsuki, M., 2014
Educational research into computer science and ICT

- There are many research studies about these fields constantly being undertaken.
- For example, this year, a paper was written, which proposes a new entire education system of informatics throughout K-12:

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References