Open School Platforms Project

An initiative of the Japanese government to promote Open Source Software in the Japanese K-12 education.

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Quebec City

Contents

Introduction

Open School Platforms (OSP) Project

- To encourage elementary and secondary education, i.e., primary, junior-high and high schools (K-12) to employ Open Source Software for IT and IT-empowered education.
- Information-Technology Promotion Agency (IPA) under the Ministry of Economy, Trade and Industry (METI) started the project in 2004.
- The Center for Educational Computing (CEC) succeeded the project since 2005 with the emphasis on **pedagogical experiments** under the support of METI and the Ministry of Education, Culture, Sports, Science and Technology (MEXT).
- The committee was organized
  - to select promising proposals featuring different aspects and
  - to navigate them to clarify the effects and issues of OSS for IT and IT-empowered education in Japan.

Motivations of the OSP Project

In addition to the OSS merits of customizability, transparency, cost benefit, performance, security and so on:

- **To exclude black boxes.** If students are interested in the mechanism, they should be able to look into the mechanism. Talented students may modify and customize the environment.
- **To liberate education from a particular system.** If the education is made on a particular system, or particular applications, it will be soon out of date.
- **To educate students in open collaborative atmosphere.** The internet is forming the culture to cooperate over time and space constraint. Students learn on OSS and learn the culture.
- **To let students experience multiple platforms.** They naturally learn what is common and what is different, what is intrinsic and what is technical, what can be done and what cannot be done, etc.

OSP in 2005

Units in 2005

Tsukuba city and Gifu prefecture regions
- The most advanced regions in IT.
- Initiated by IPA under METI in 2004 and succeeded by CEC.
- Test OSS as the learning environment and self-supported operation.
- Employ OSS in almost all subjects (> 100 hours at each school in a year).

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Kyotanabe region
- The educational committee (EC) and staffs of the city are leading IT.
- Test remote support of the OSS environment and learning from EC.
- Employ OSS in Social Studies, Science and Projects as well as club (circle) activities (>

Soja city
Participants: 2 primary schools,
1 junior-high school
No. students: 1000
No. PCs: 130
OS: Debian Gnu/Linux

Soja region
- A unique region of accumulating digital contents for learning.
- To examine system dependence of digital contents.
- Test thin-client network architecture for schools.
- Employ OSS in almost all subjects (> 100 hours at each school in a year).

Lessons Learnt

No confidence to the result 

- This was just a fear. The students who participated had no difficulty to use OSS platforms.
- The system download to thin-clients is convenient and ease the maintenance.
- The cost for preparing and maintaining propriety software can be redirected to better support within a fixed budget so that the teachers can more concentrate on teaching.
- OSS stimulates students to try programming in club activities at junior-high schools.

Lessons Learnt from Each Unit

Tsukuba city and Gifu prefecture regions

- A class room PC management system developed as OSS in the IPA project in 2004, which automatically initializes or updates all the PCs in a class room, has reduced the labor-intensive maintenance to within 5 hours a week.

Kyotanabe region

- Centralized control and management from the educational committee was proved effective.
- For all the schools, two network engineers prepared for and maintained OSS platforms.
- This unit revealed several technical problems to solve.

Soja region

- Thin-client network architecture decreased maintenance but revealed the requirement for high performance network equipments.
- The unit revealed several technical problems to solve and identified the types of contents that are unplayable on OSS platforms.

Issues to be solved

- Contents and applications are not so affluent on OSS platforms as those on propriety systems.
- Latest peripheral devices controllable from propriety systems may not be controllable from OSS platforms. Even if controllable, some devices may require a strange sequence of commands for set-up.
- OSS is promising in IT-advanced regions where more than a critical mass of teachers are working but how does it go in ordinary regions? Some teachers are reluctant to use OSS platforms. How can we motivate them and help them employ OSS?
- The thin-client architecture is promising, but how much of the downloading time can be reduced?
- Is it possible to make the win-win business model for both schools and vendors?

OSP in 2006

Focus for 2006

(1) Community network

Community network to exchange ideas, share questions and answers will be helpful. Truly useful contents, applications and information, even if not affluent, help teachers design learning. Moreover, Web contents and applications can be used on propriety systems as well.

(2) Standard package

A standard package composed of OSS systems installer, manuals, teaching plans for students, videos, etc. is necessary for ordinary teachers and schools to try OSS. The materials made in 2005 should be examined and tested in ordinary schools.

(3) Software for class or school management for OSS platforms

For teachers who are not positive to use OSS platforms, OSS tools useful for class or school management may convince the value of OSS. Teachers are the best professionals to evangelize, once they understand the benefit and ideal of OSS.

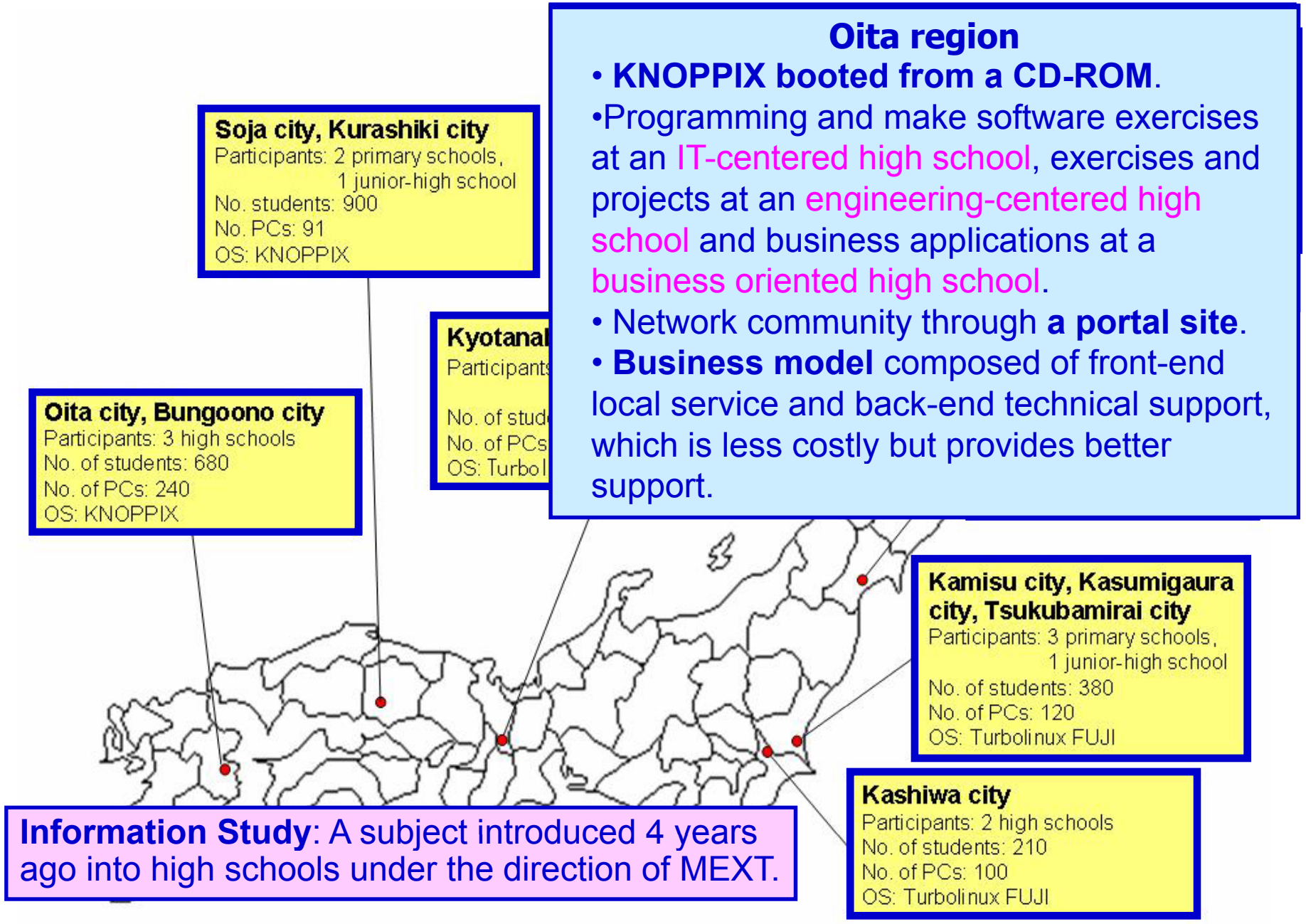
(4) Speedup of downloading to thin-clients and evaluation of the thin-client architecture

It is necessary to speed up the downloading time for thin-client PCs and verify the privacy-protection and security merit.

(5) Business model

Business models good for both schools and vendors are vital for continuous support.

Units in 2006



Oita region

- **KNOPPIX booted from a CD-ROM**.
- Programming and make software exercises at an IT-centered high school, exercises and projects at an engineering-centered high school and business applications at a business oriented high school.
- Network community through **a portal site**.
- **Business model** composed of front-end local service and back-end technical support, which is less costly but provides better support.

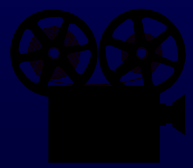
Information Study: A subject introduced 4 years ago into high schools under the direction of MEXT.

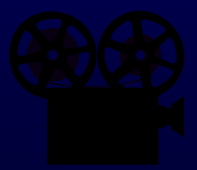
Scenes of Learning on OSS

recharging station

Lessons Learnt

- OSS is effective also for high school subjects and students.
- Educational packages prepared in IT-advanced schools are effective for "ordinary" regions.
- OSS groupware was proved useful. It help teachers use IT.
- The system boot was optimized either form network, compact flash, CD-ROM to less than a few minutes, which seems not so serious even for lessons of 50 minutes.
  - enabled people to uses any PC like their own in class, teachers' office or wherever it was without having to be conscious to the privacy or security.
  - also eased to use multiple platforms.
- Usability of OSS platforms for younger students in elementary schools were significantly improved by slight customization of OSS desktop and office suites, such as the size of icons, message text and their font size.
- The business model composed of front-end local service and back-end technical support seems less costly and effective.
- Most of the contents (>97%) in Japanese educational sites are playable on OSS platforms.
- Educational effect seems high.





Result of Qualification test

At a high school in Oita, students learnt business applications using **OpenOffice.org** more than **MS Office** and sat for a qualification exam using **MS Office**.

Qualification Grade	# applicants	# passed	Ratio at this school (average of Oita prefecture)
3rd	193	162	84% (71.4%)
2nd	39	39	100% (50.5%)

Even better than the average.

Achievement of Sub-goals

Here, we verify how far we have achieved the sub-goals:

(1) Community network

Sendai region, Soja region and Oita region employed KNOPPIX, collaborated to solve problems, share effective solutions and uploaded useful information to the KNOPPIX-based Education Study Group (http://www.knoppix-edu.org/).

(2) Standard package

Each unit has prepared a standard package to be used for ordinary schools. Newcomers can select them according to their needs and situations.

(3) Software for class or school management for OSS platforms

Class or school management tools for OSS platforms were welcomed by teachers. Teachers starts to understand the usefulness and importance of OSS. Some of them are Web-based systems independent form OS.

(4) Speedup of downloading to thin-clients and evaluation of the thin-client architecture

The system boot was optimized either form network, compact flash, CD-ROM to less than a few minutes.

(5) Business model

We now have a promising model.

Remaining issues

Although we have achieved the sub-goals to a large extent:

- Still a majority number of schools and teachers have fear or anxiety to weak support and a less amount of available software on OSS platforms. They hesitate to use OSS platforms.

>> We need to keep the effort to expand the community network and help schools or teachers employ OSS platforms.

- We also need to persuade local governments to keep the budget so that schools or teachers who employ OSS can redirect the budget saved for better support.

>> Consequently, the teachers can concentrate on teaching, which is most important for children.

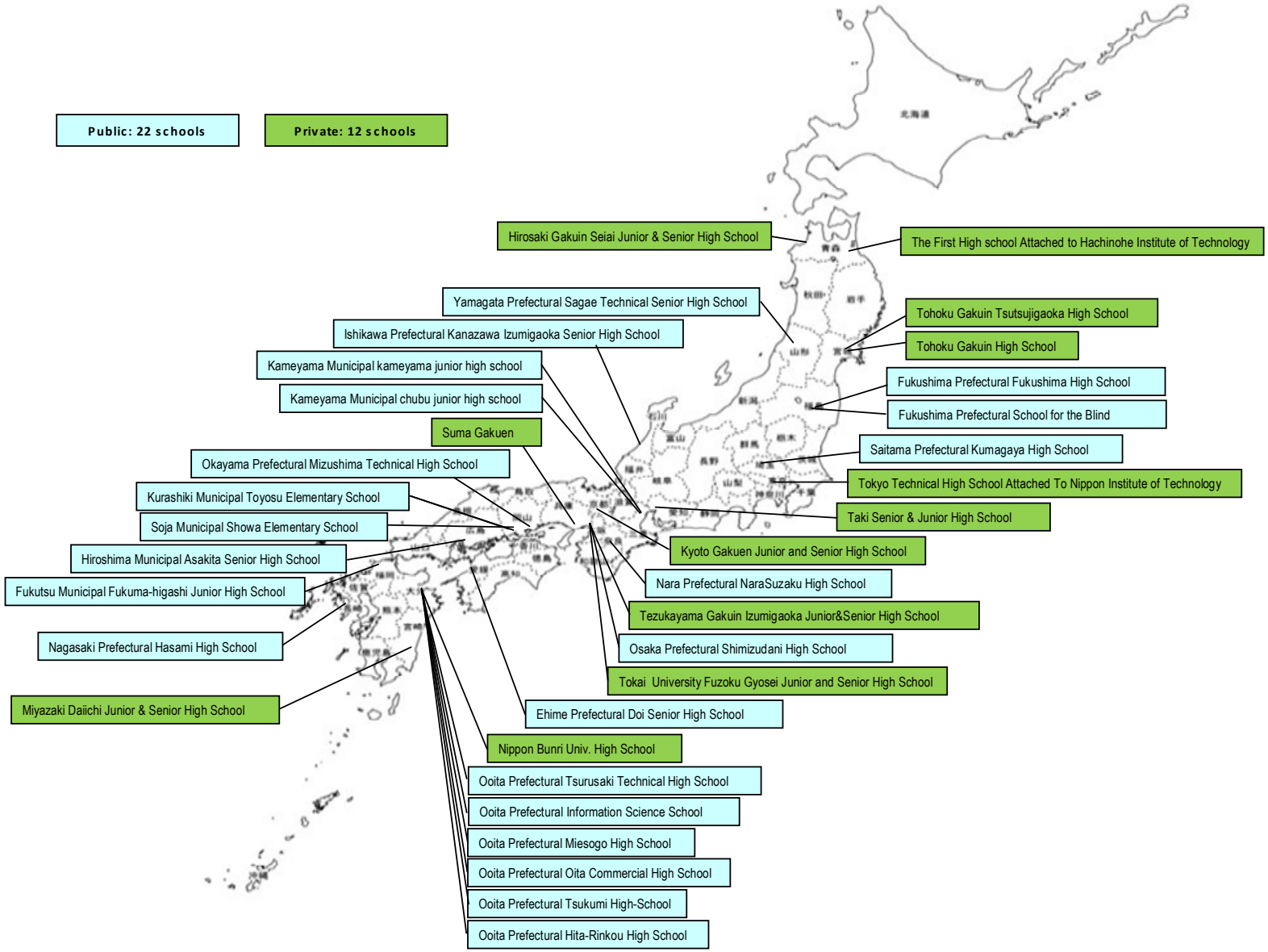
- The cost shift from hardware and propriety software to service is also important for vendors to establish the business model.

>> If local companies can join this market, it is good for local governments and stimulates young people seeking jobs there to learn OSS.

OSP for 2007

- The mission of this year is to provide the OSS packages so far developed and extend or refine them in the real use in schools.
- We invited vendors and schools to join this project and selected 5 vendors and 34 schools.

34 Schools selected for 2007



Summary

- Open Source Software for K-12 education
- Initiative of the Japanese government
- 3 years succeeding 1 preliminary year
- **Promising results with some issues revealed**
  - Students have no difficulty to use OSS.
  - Initial cost is reduced and support can be enhanced.
  - Thin-clients: decrease labor-intensive maintenance, protect students' privacy and keep security.
  - OSS to help teachers makes them to understand OSS.
  - We can expect higher learning effect.
  - Teachers' fear or anxiety to use OSS.
  - Premature business model.
  - Local government initiatives needed to promote OSS and to create local support business and jobs.

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