What Shall we do for Facilitating the Use of ICT in Special Education?

【How Best to Facilitate the Use of ICTS in Special Education 】

CSUN2016

Date: Friday, 25 March 2016

Time: 10:00 AM

Location: Third Level, Promenade AB

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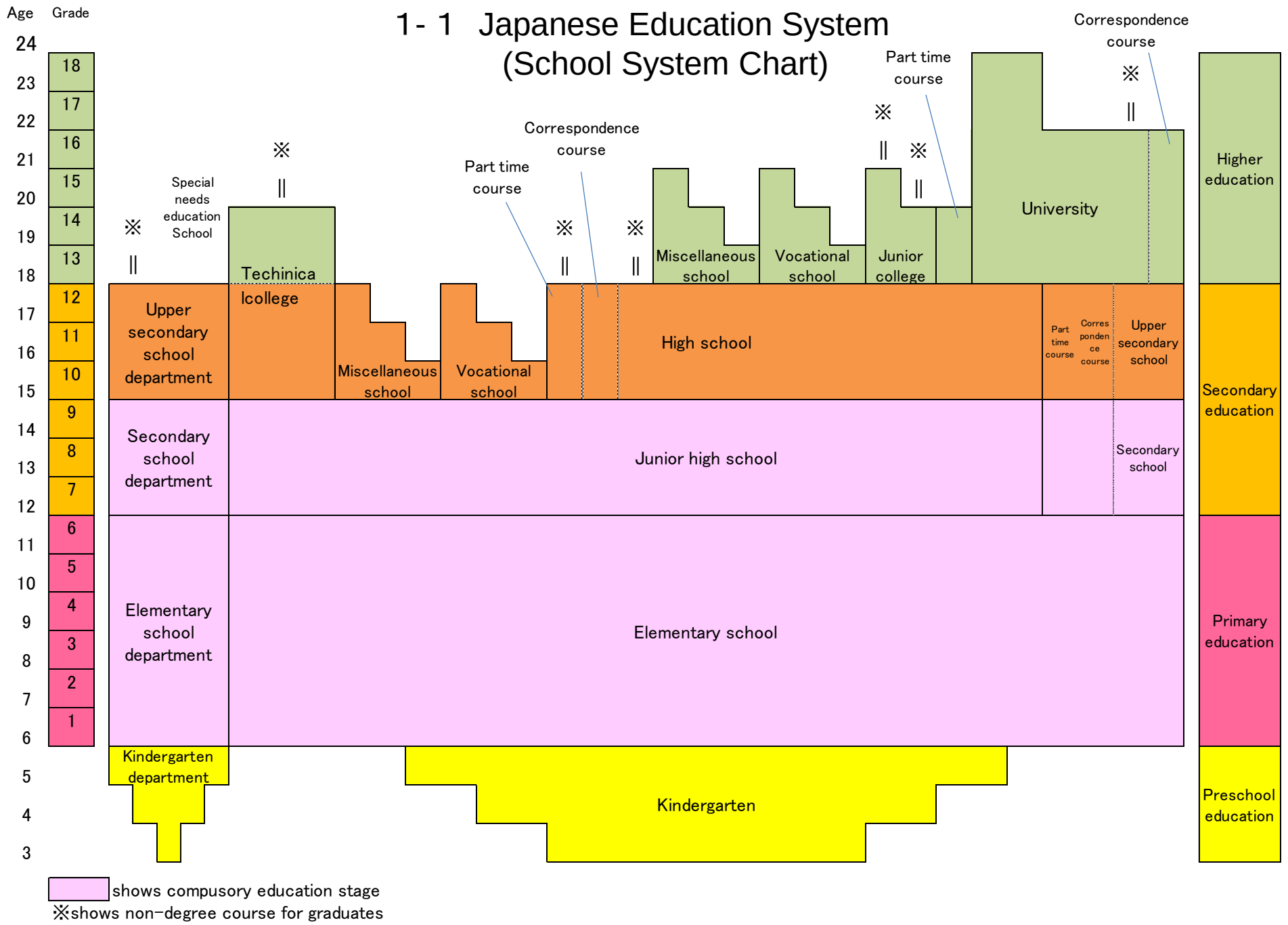
Today's Topics

1. The Japanese educational system and various places of learning for elementary school, middle school, and high school students with disabilities
2. The state of Integrated Co-Teaching (ICT) in special education schools
3. A survey of boards of education in terms of preparations for ICT environments
4. ICT in elementary, middle, and high schools.
5. Discussion
   - Further promotion of ICT in Japan

1- 1 Japanese Education System (School System Chart)



1-2 Various Places of Learning for Children with Disabilities at the Elementary, Middle, and High School Levels

Children with disabilities are enrolled mainly in the following places of learning:

- Elementary Schools (regular classes, special instruction, special education classes)
- Middle Schools (regular classes, special instruction, special education classes)
- High Schools (full-time, part-time, correspondence courses)
- Special Education Schools (kindergarten, elementary, middle, high school, advanced high school courses)
- University, Junior College

Of these, individuals with intellectual disabilities are mainly enrolled in the following:

- Elementary Schools (regular classes, special education classes)
- Middle Schools (regular classes, special education classes)
- High Schools (full-time, part-time, correspondence courses)
- Special Education Schools (kindergarten, elementary, middle, high school, high school advanced courses)

Overview of Research

① Survey Research on ICT
- National survey of ICT in special education schools
- Survey of ICT usage and environment preparation in prefectures, municipalities, and designated cities
- Limited Area Survey of ICT at all school levels
- ICT in special education schools
- ICT by disability type – current state and issues
- Examples of ICT

② ICT in Elementary, Middle, and High Schools

③ ICT Usage – Current State and Issues
- Examples of ICT in separately located instruction.

National Survey of ICT Usage in Special Education Schools

- Objective
  - The aim was to focus on ICT usage and understand the extent to which special education schools throughout Japan have assistive devices, teaching materials, and teaching devices, as well as to understand the current state of use of these learning tools and any issues they present.

- Method
  - We sent an email asking for survey participation to representatives (in some cases, to the principals) of special education schools throughout Japan, with an attached questionnaire (which was also available online).
  - Completed questionnaires were received by email at a specialized address for collecting responses.
  - Distribution was to 1,259 special education schools nationally (including satellite schools and satellite classrooms).

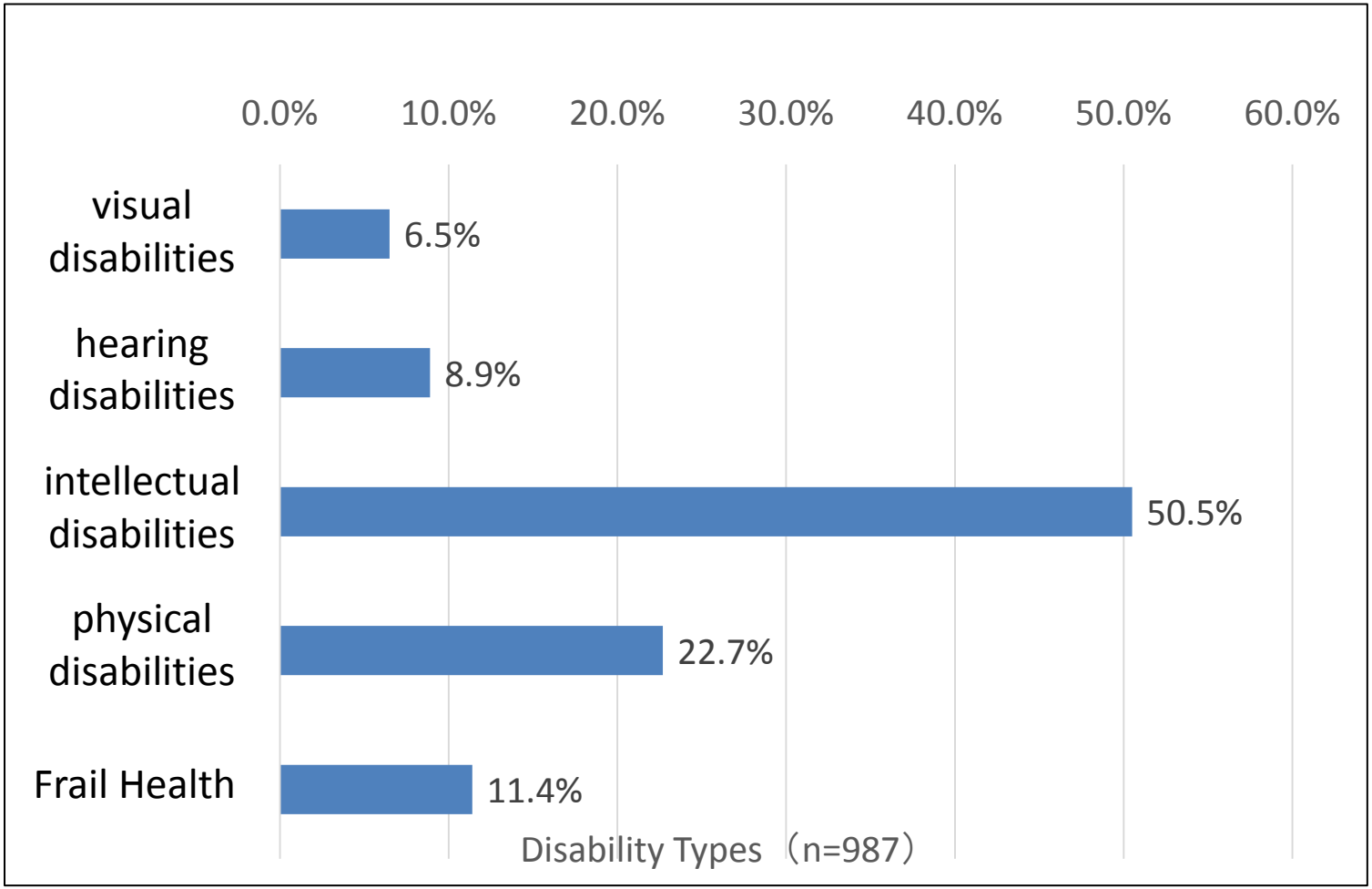
- Survey Items
  I. Basic information
  II. School-internal systems
  III. Device preparation
  IV. Digital textbook preparation
  V. Use of assistive devices together with ICT
  VI. Pilot Schools (optional)

- Survey Response
  - Responses from 783 schools received (62.2 % response rate)

National Survey of ICT Usage in Special Education Schools

Summary of Results

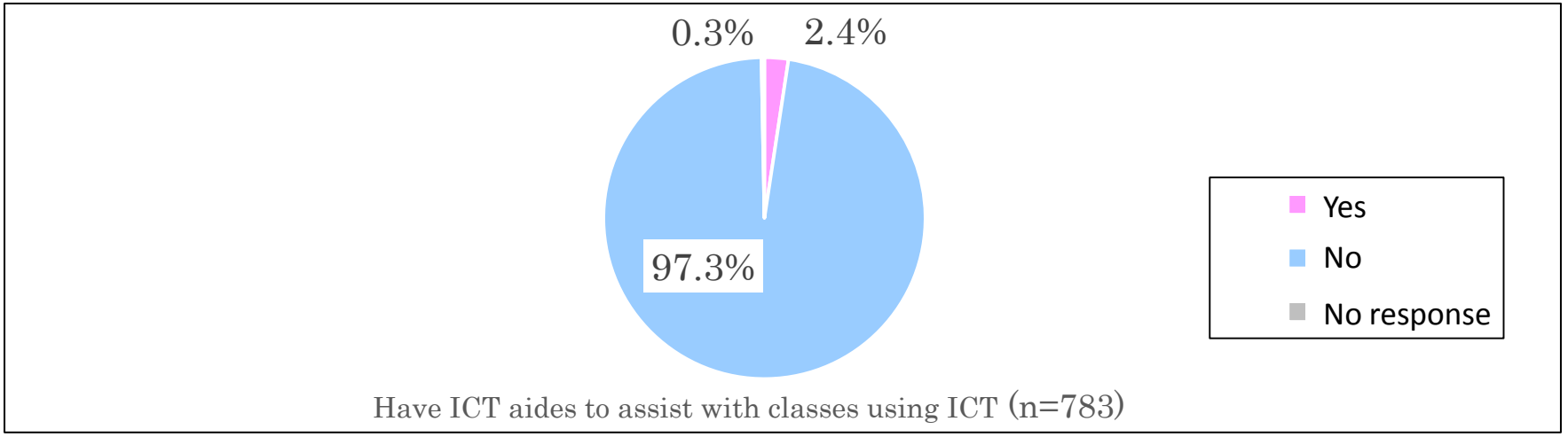
The disability type most accommodated is intellectual disability



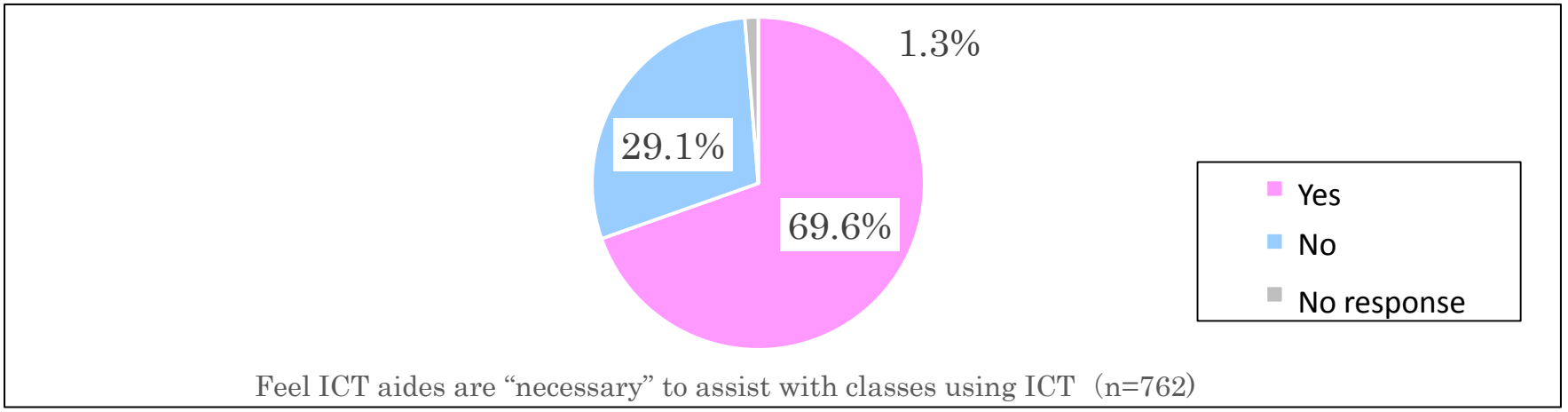
National Survey of ICT Usage in Special Education Schools

Summary of Results

Although there are barely any ICT aides to assist with classes using ICT, approximately 70% of respondents felt that such assistance is “necessary.”



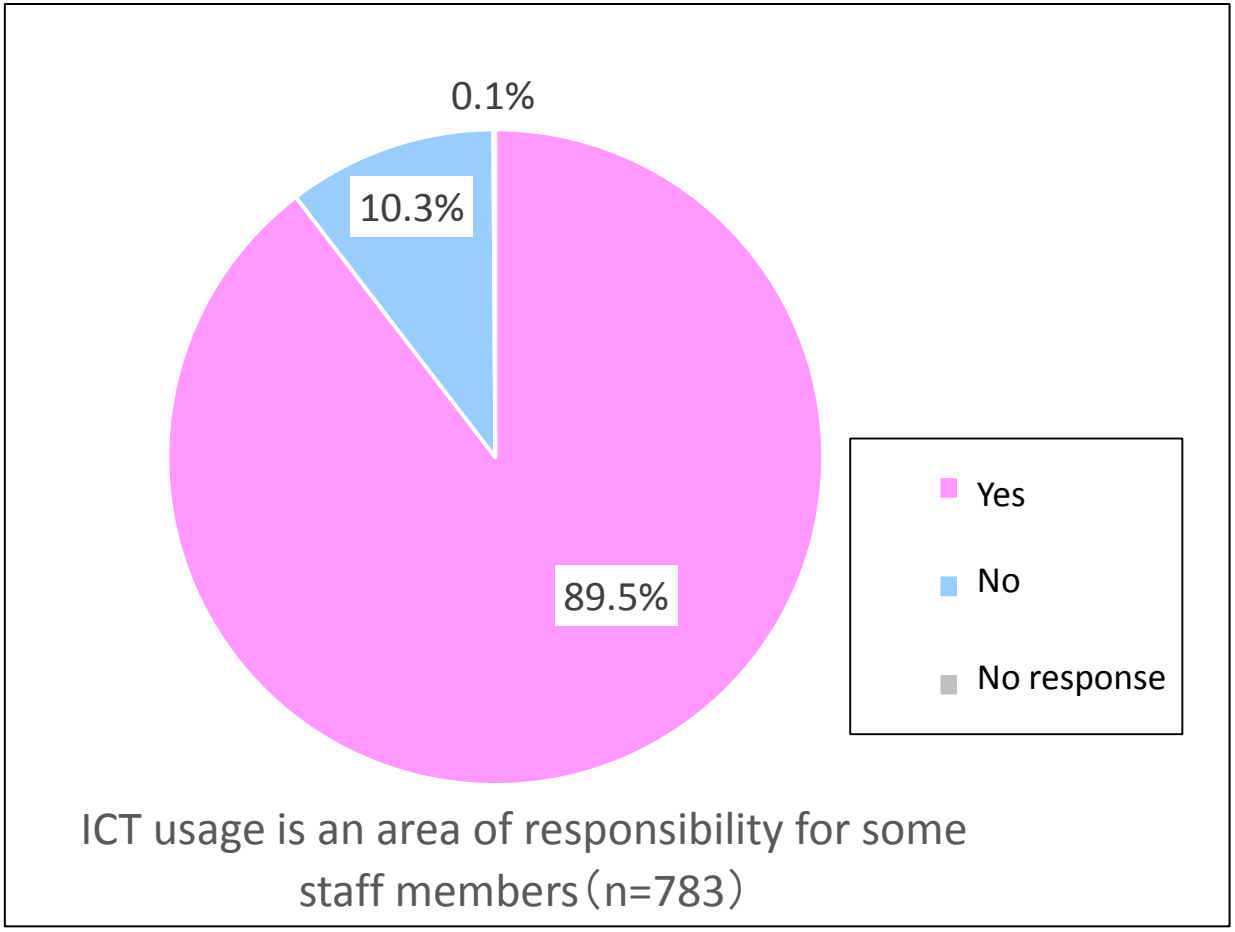
Have ICT aides to assist with classes using ICT (n=783)



Feel ICT aides are “necessary” to assist with classes using ICT (n=762)

National Survey of ICT Usage in Special Education Schools
Summary of Results

In 89.5% of schools, ICT usage is an area of shared responsibility under the "division of duties" system.

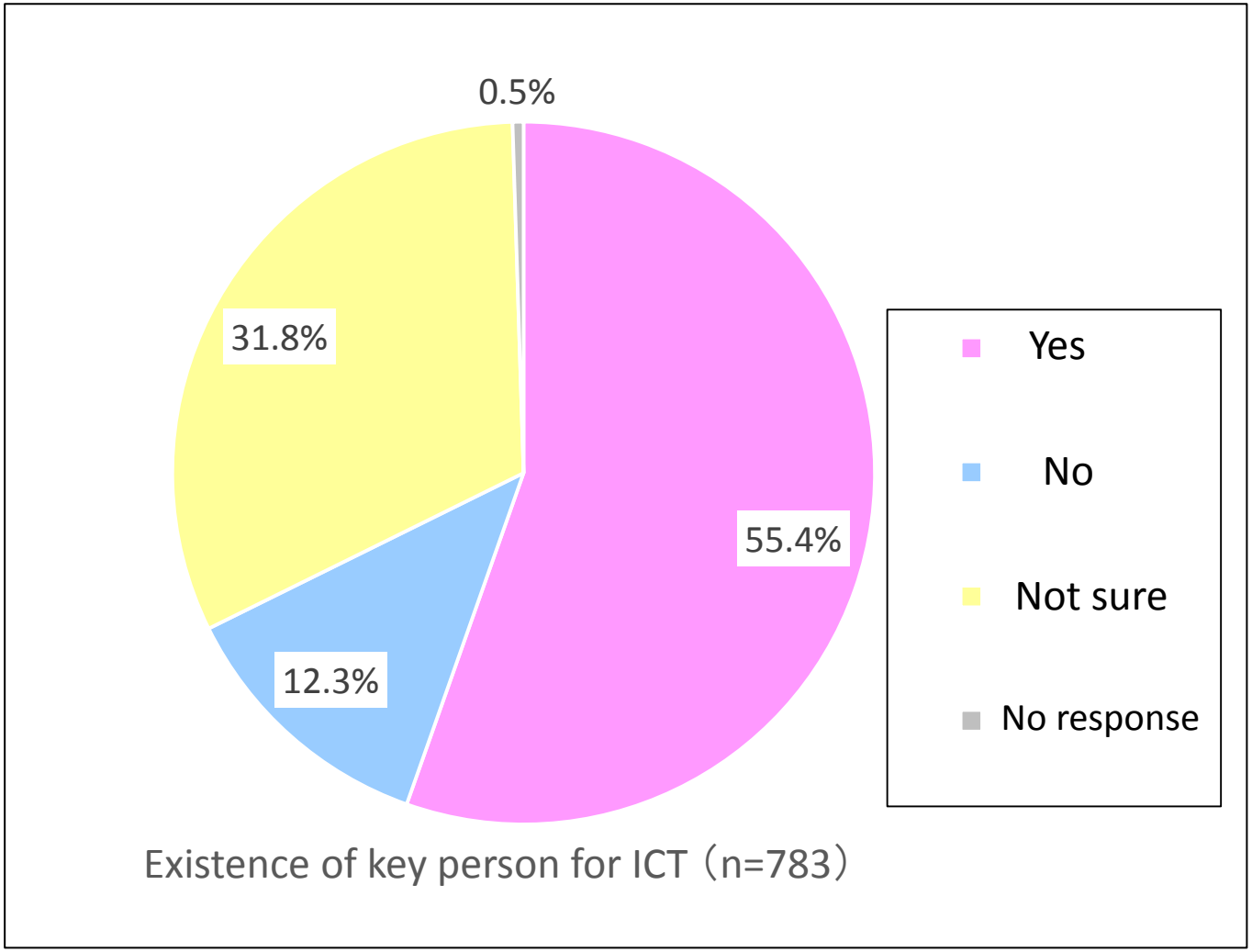


ICT usage is an area of responsibility for some staff members（n=783）

National Survey of ICT Usage in Special Education Schools

Summary of Results

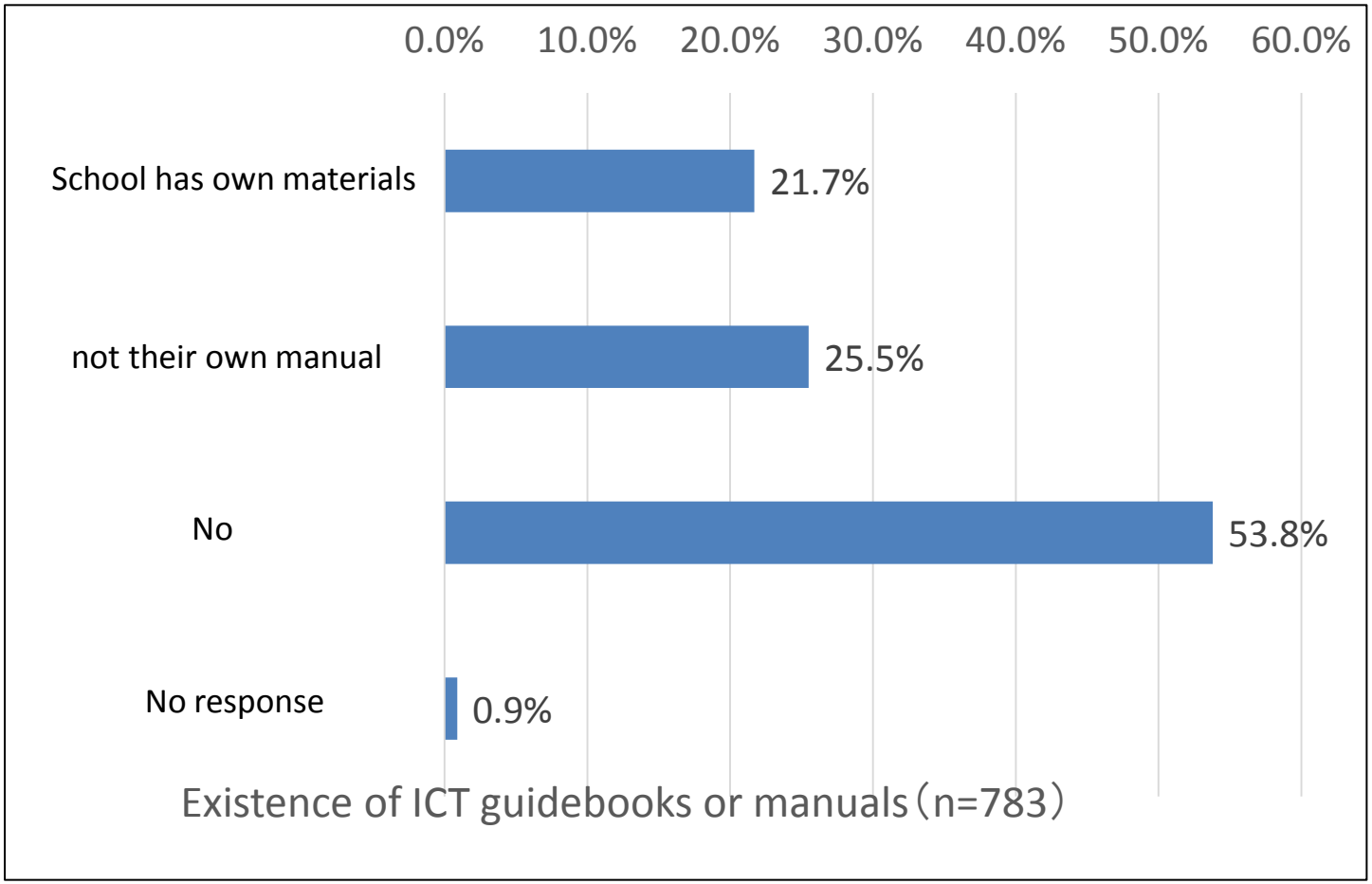
In 55.4% of schools, one key person was associated with ICT usage.



National Survey of ICT Usage in Special Education Schools

Summary of Results

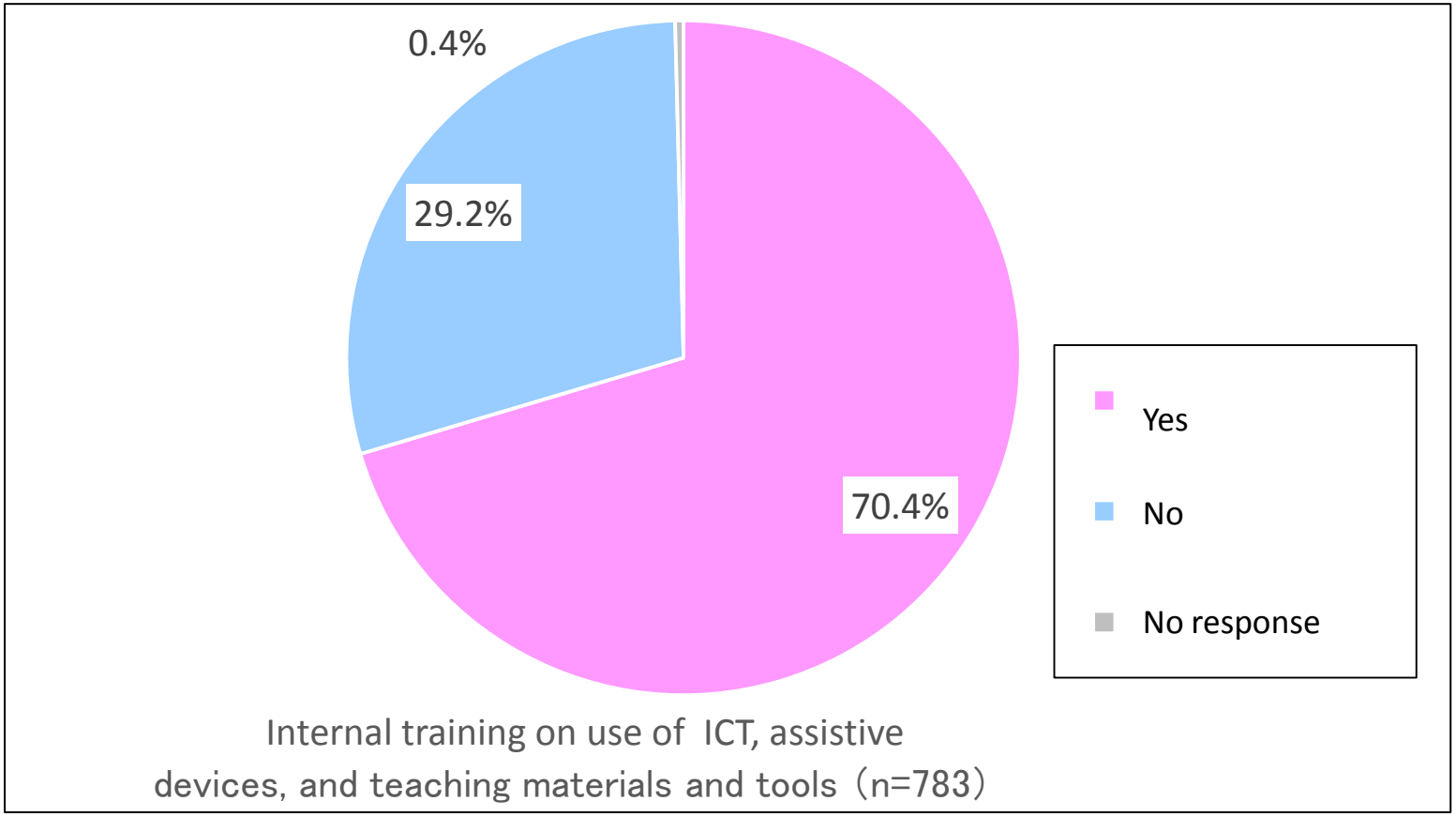
53.8% of schools do not have guidebooks or manuals for ICT



National Survey of ICT Usage in Special Education Schools

Summary of Results

70.4% of schools responded that they had internal training on using ICT, assistive devices, and teaching materials and tools.



National Survey of ICT Usage in Special Education Schools

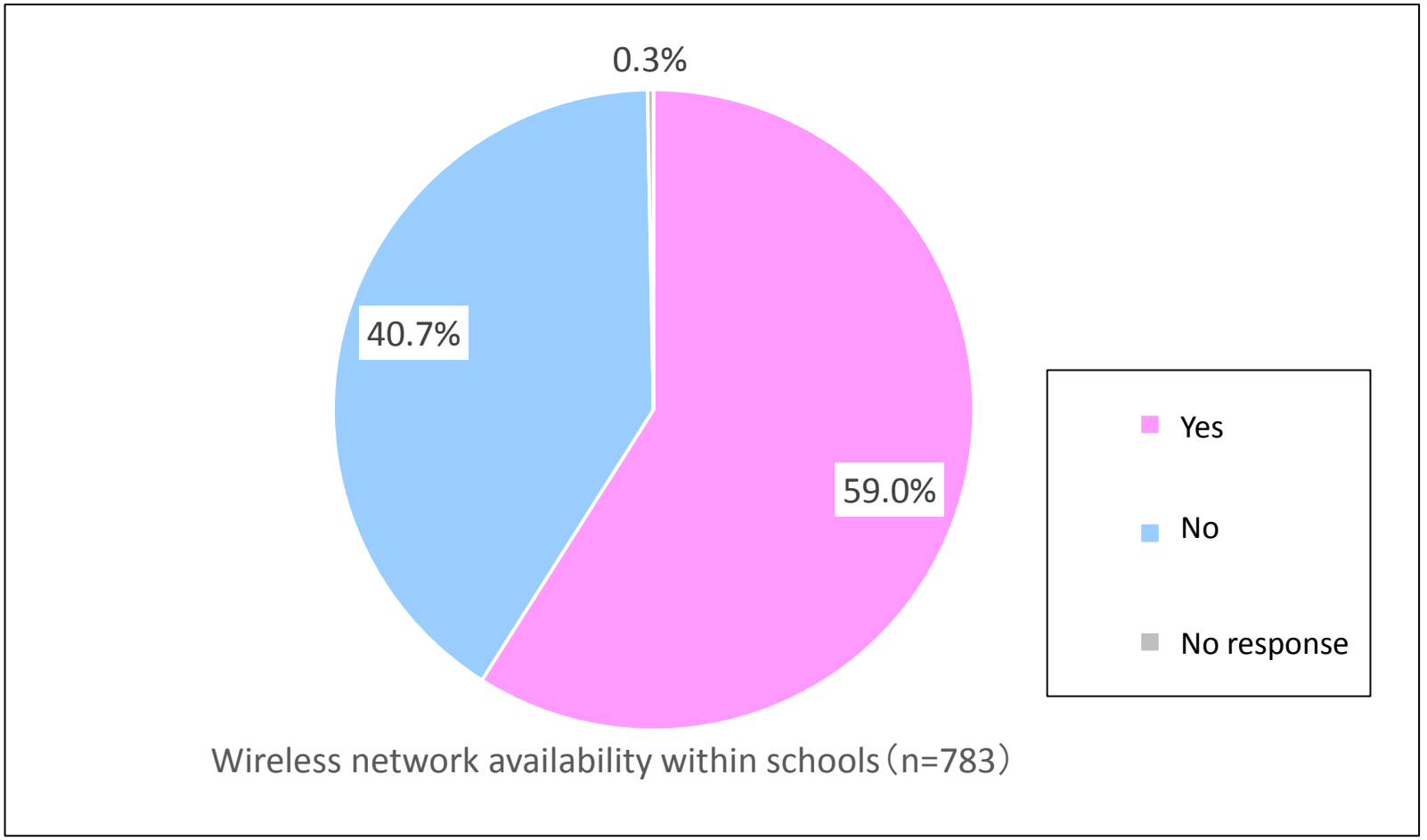
Summary of Results

In the case of intellectual disabilities, the percentage of schools providing internal training and wireless connectivity were both significantly low.

			Understanding of ICT among all teaching staff			Cooperation from other employees with respect to ICT			Training in use of ICT, assistive devices, and teaching materials and tools?	
			Satisfactory	Fair	Poor	Exists	Doesn't Exist	Uncertain	Yes	No
Is there a key person for ICT?	Yes	Degree	89	328	17	273	23	138	346	87
		Adjusted Residual	5.7	0.6	−7.2	13.7	−4.5	−10.8	6.4	−6.4
	No	Degree	6	56	33	13	31	51	47	48
		Adjusted Residual	−2.3	−3.8	7.8	−5.9	8.2	1.0	−4.8	4.8
	Un-certain	Degree	15	197	37	36	20	193	156	93
		Adjusted Residual	−4.5	2.0	2.2	−10.5	−1.0	10.9	−3.4	3.4
	Total	Degree	110	581	87	322	74	382	549	228

National Survey of ICT Usage in Special Education Schools
Summary of Results

- 59.0% of the schools responded that they had wireless networks available.



National Survey of ICT Usage in Special Education Schools

Summary of Results

A low proportion of schools educating students with intellectual disabilities had school-internal training. The same was true for wireless connectivity.

			Training provided in ICT, assistive devices, and teaching materials and tools?		Wireless connectivity in school?	
			Provided	Not Provided	Yes	No
Disability Type	Visual	Degree	37	8	28	18
		Adjusted Residual	1.8	−1.8	0.2	−0.2
	Auditory	Degree	43	18	40	21
		Adjusted Residual	0.0	0.0	1.1	−1.1
	Intellectual	Degree	243	132	201	173
		Adjusted Residual	−3.4	3.4	−2.9	2.9
	Physical	Degree	86	15	73	29
		Adjusted Residual	3.4	−3.4	2.7	−2.7
	Frail Health	Degree	44	16	33	27
		Adjusted Residual	0.5	−0.5	−0.7	0.7
	Intellectual & Physical	Degree	51	23	52	22
		Adjusted Residual	−0.3	0.3	2.0	−2.0
	Other	Degree	47	17	35	29
		Adjusted Residual	0.5	−0.5	−0.8	0.8
	Total	Degree	551	229	462	319

National Survey of ICT Usage in Special Education Schools
General Conditions

- When there is a key person associated with ICT, there is progress in staff understanding of ICT and cooperation from other staff members with respect to ICT. On the contrary, when there is no key person, we see a greater percentage of schools in which there is little progress in staff-wide understanding of ICT, and no provision of internal training sessions.
- In terms of disability type, it is clear that support systems, training, environment, and preparation for ICT are insufficient in special education schools for intellectual disabilities in comparison to special education schools for other types of disabilities.
- Improvement of several variables within the control of schools - such as training of key persons, provision of training, the creation of guidebooks, and installation of wireless networks – appears to be an important condition for the promotion of ICT in special education schools.

Survey of ICT Environment Preparation and Use in Municipalities, Prefectures, and Designated Cities

- Objective

  To collect information about policies and common steps undertaken by prefectures, municipalities, and designated cities with respect to work done to install wireless networks and introduce tablet-based applications in special education schools.

- Method
  - A questionnaire survey addressed to individuals responsible for special education schools was sent to 47 municipal and prefectural educational boards and 20 educational boards in designated cities.
  - The completed questionnaires were collected by FAX using FAX answer sheets.

- Survey Items

  ① Wireless network policy

  ①－1 Is there a wireless network available in the special education school?

  ①－2 Issues of concern where wireless is available.

  ② Plans to prepare for introduction of applications (tablet applications only obtainable online)

  ②－1 Can there be further purchasing and further introduction of applications?

  ②－2 Method of purchasing and introducing applications

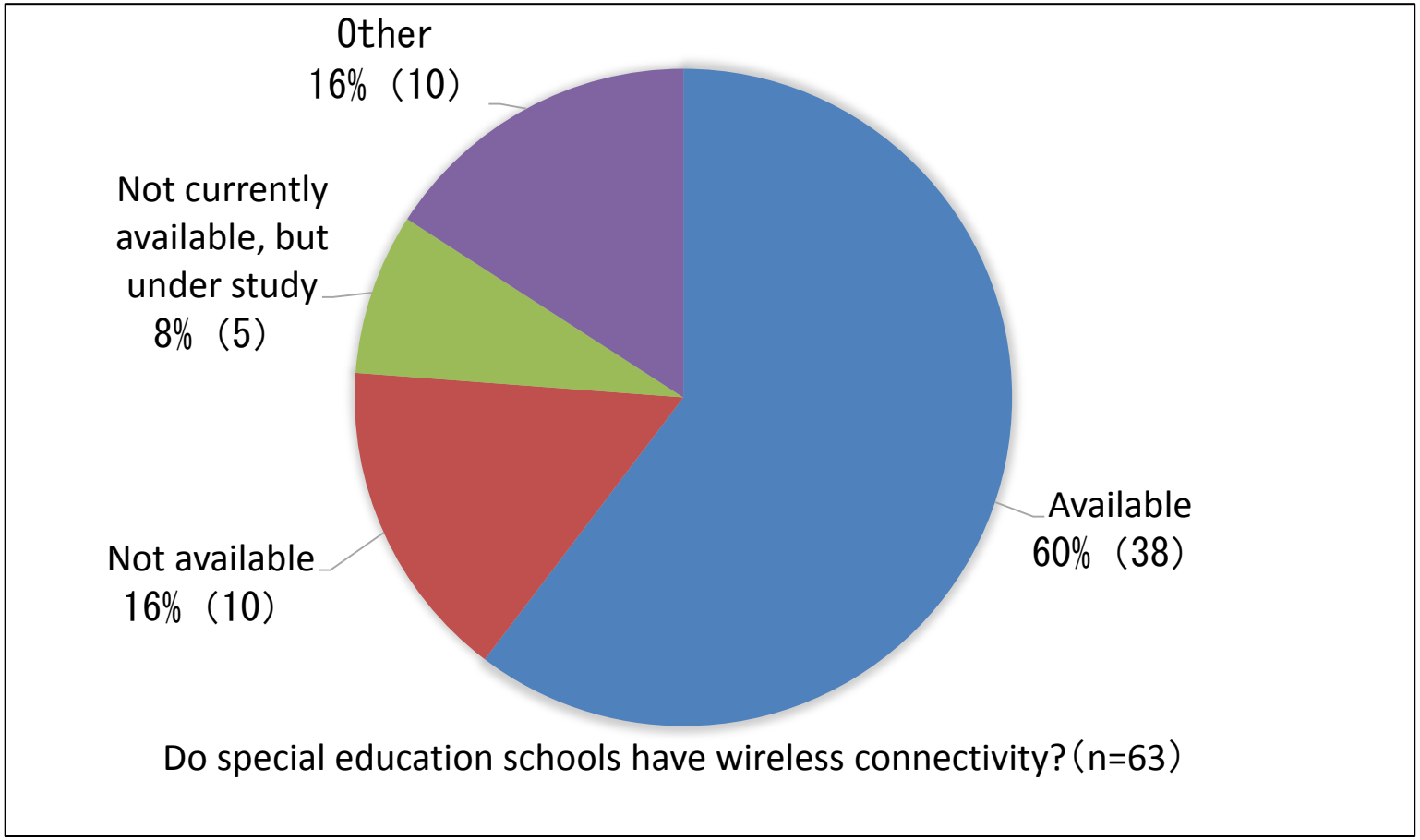
  ③ Tablets to be used for ① and ②

- Survey Collection
  - Return rate of 100% (however, 4 schools without special education programs were not included in the findings)

National Survey of ICT Usage in Special Education Schools

Summary of Results

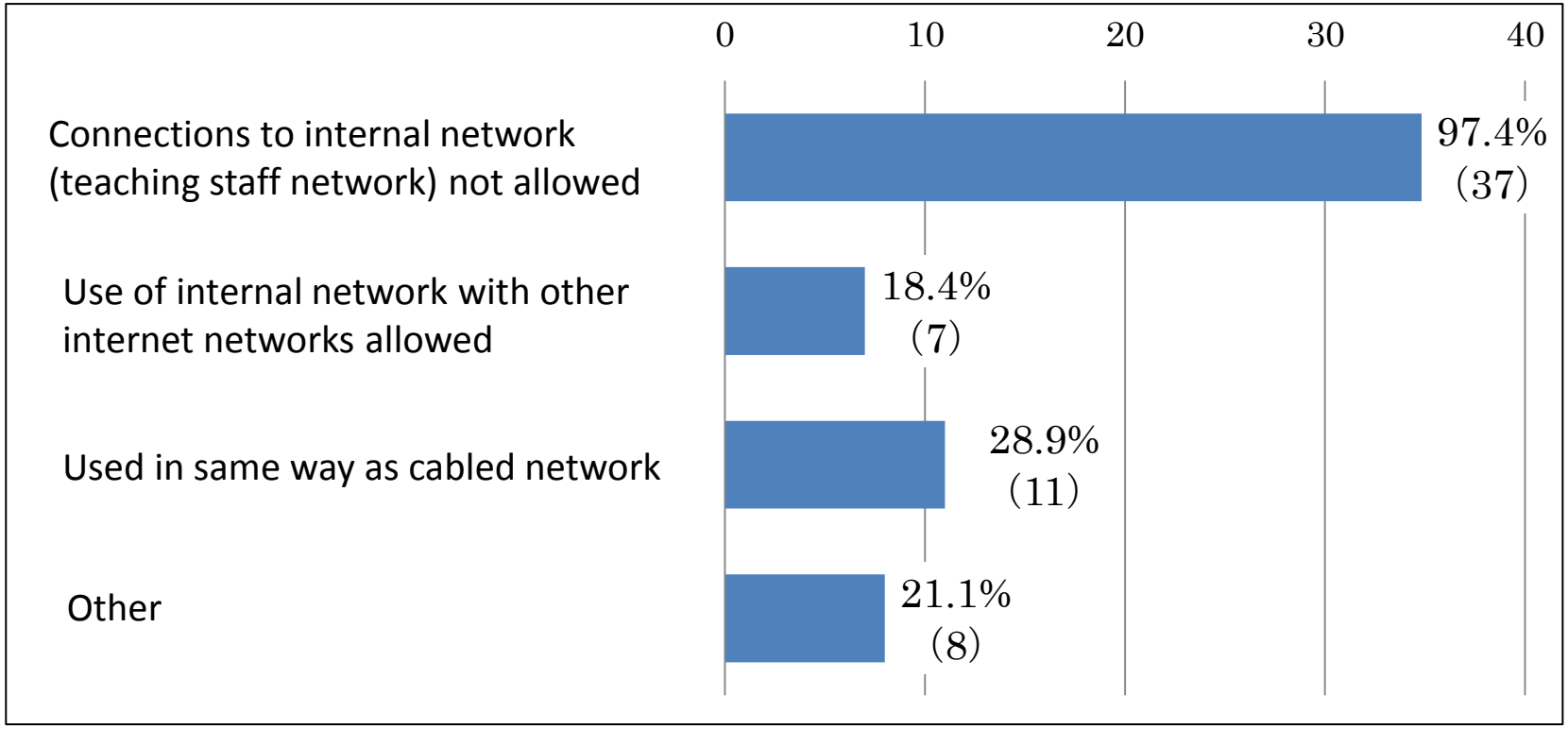
"Sixty percent of cities responded that wireless LANs are available in special education schools."



Survey of ICT Environment Preparation and Use in Municipalities, Prefectures, and Designated Cities

Summary of Results

Thirty-seven cases reported “not allowing connections to school-internal LAN (network for teaching staff)” and this is an issue of concern in many cities.

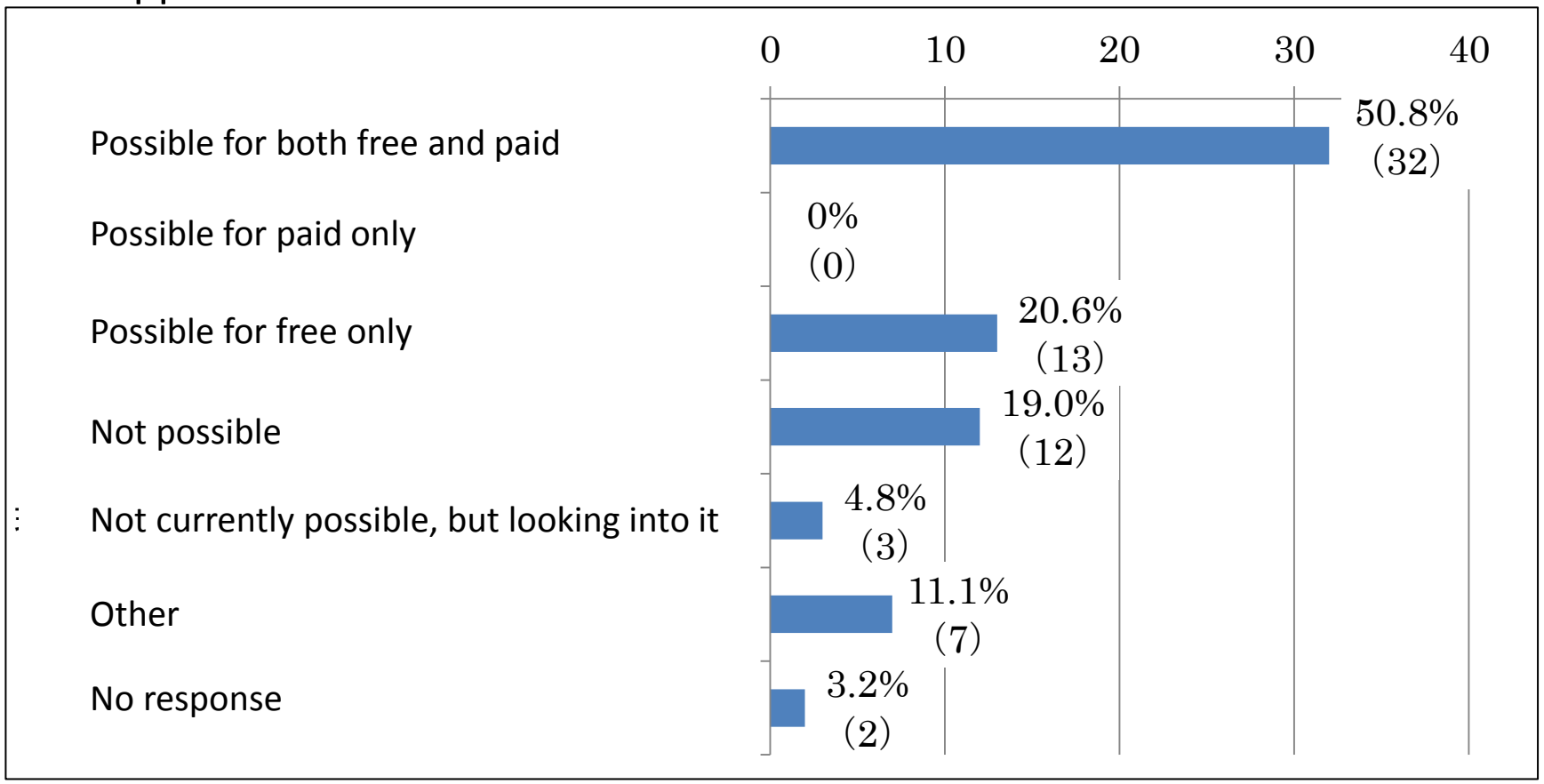


Issues for consideration with wireless connectivity (multiple answers possible) (n=38）

Survey of ICT Environment Preparation and Use in Municipalities, Prefectures, and Designated Cities

Summary of Results

In 32 cases, or about half of survey responses, both free and paid applications were used.

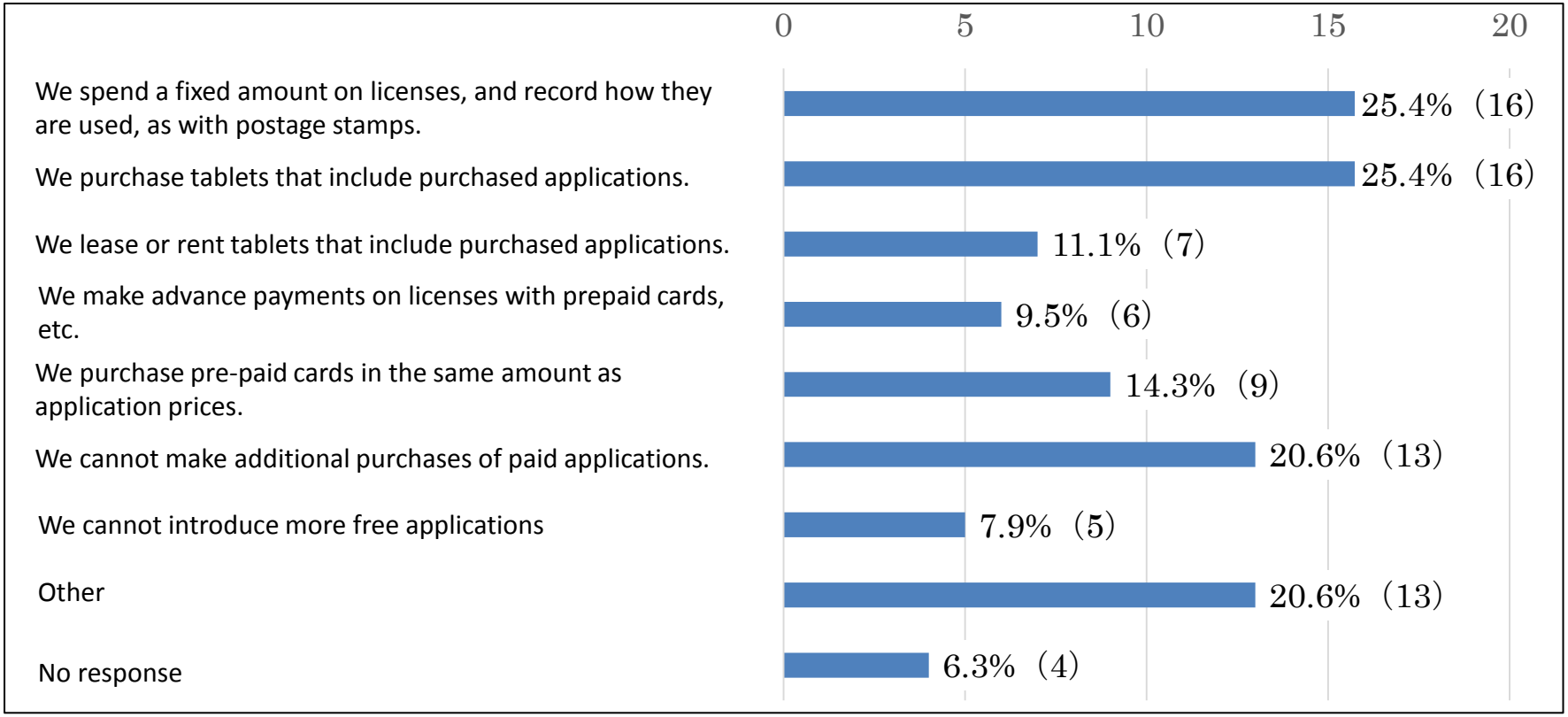


Can there be further purchasing and introduction of new applications? （n=63）

Survey of ICT Environment Preparation and Use in Municipalities, Prefectures, and Designated Cities

Summary of Results

The responses “We spend a fixed amount on licenses, and record how they are used, as with postage stamps,” and “We purchase tablets that include purchased applications,” both occurred 16 times.



Methods of purchasing and introducing applications (multiple possible answers)（n=63）

Survey of ICT Environment Preparation and Use in Municipalities, Prefectures, and Designated Cities

Summary of Results

- There is a risk that where a wireless network has been installed computers may inadvertently connect to it, due to the nature of wireless networks, so consideration was given to implementing restrictions.
- It is evident that wireless networks can be set up to minimize this risk by using mechanisms that disallow connections to teaching staff networks, which store a great deal of personal information.
- With respect to the introduction of applications for tablets, many purchasing issues arise due to applications not being available as packaged software and involving purchase methods that differ from those used for packaged software.
- We saw examples of this issue being managed by the purchase of prepaid cards of set amounts and records being kept of how they were used.

Limited Area Survey of ICT Usage in Elementary, Middle and High Schools

- Objective
  - To understand what ICT devices and teaching materials are available in regular, special assistance, and special education classes, and collect information about their use.

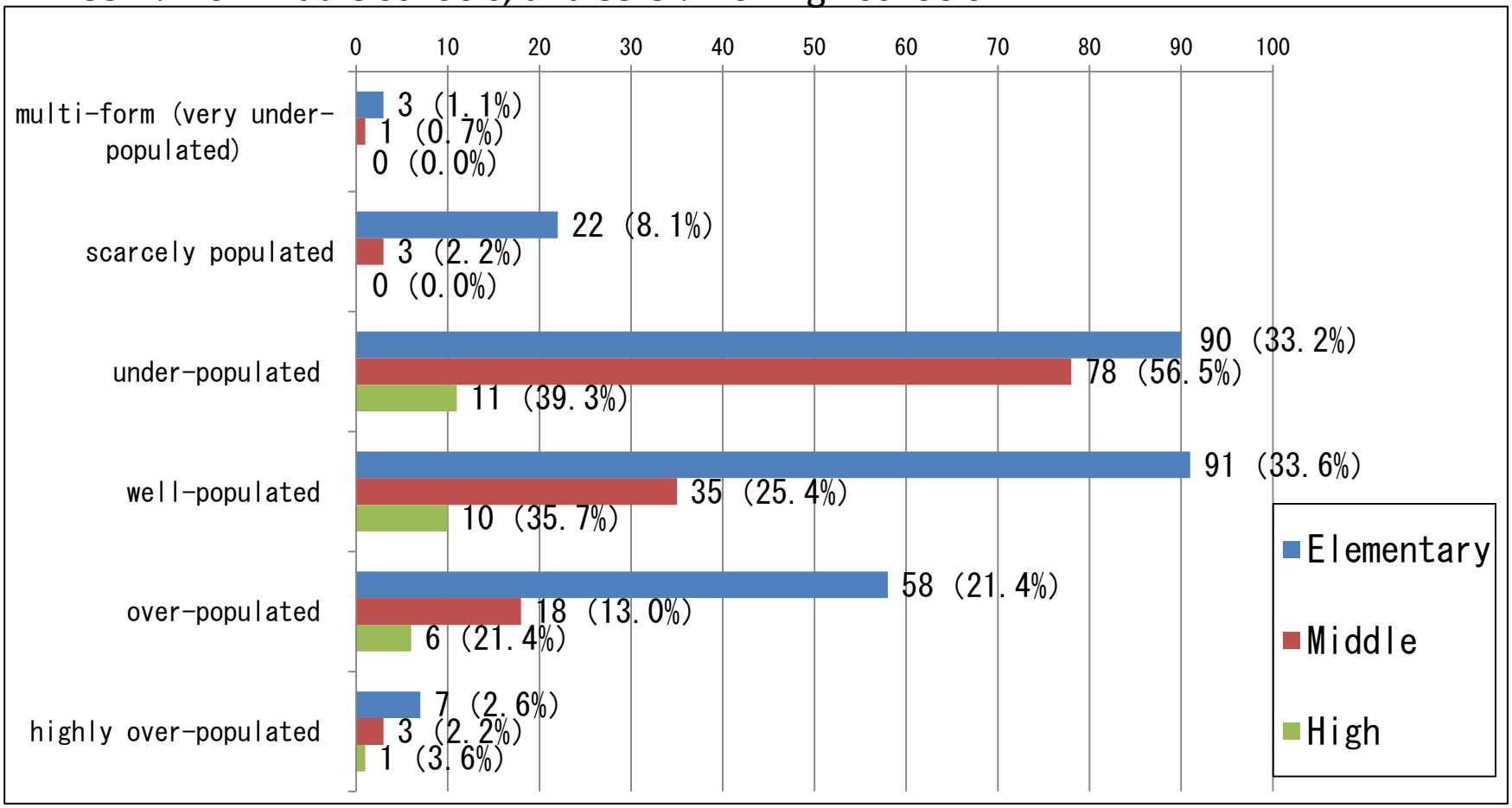
- Method
  - Surveys were sent through the chairpersons of boards of education to the attention of the principals of local government schools (elementary, middle, and high schools) in Kochi prefecture, Sendai city, and Shinagawa ward in Tokyo.
  - Answer forms were downloaded from the website of the National Institute of Special Needs Education, and responses were submitted via email.
  - "Special Education Coordinators" having an understanding of regular, special assistance, and special education classes were chosen to respond to the survey.

- Survey Items
  I. Basic information
  II. School-internal system
  III. Preparation of devices
  IV. Preparation of digital textbooks, etc.
  V. Use of assistive devices together with ICT
  VI. Use of ICT devices for students requiring special assistance

- Survey Response
  - The survey was distributed to 562 schools (elementary, middle, and high schools) in Kochi prefecture, Sendai city, and Shinagawa ward in Tokyo, and 437 responses were received (response rate of 77.8%).

Limited Area Survey of ICT Usage in Elementary, Middle and High Schools Summary of Results

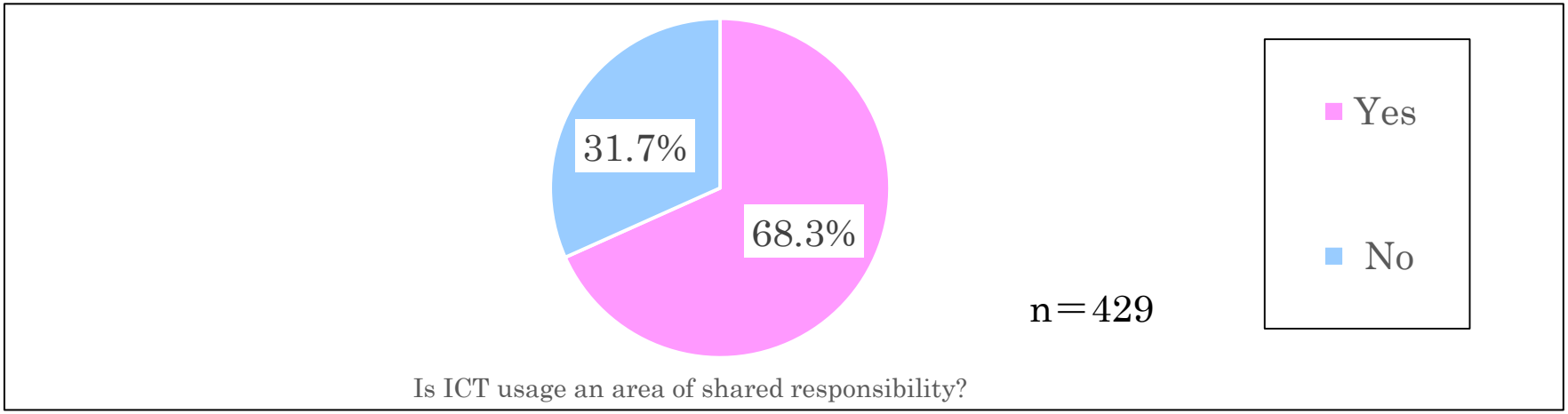
- The percentage of under-populated schools was 42.45% for elementary schools, 59.1% for middle schools, and 39.3 % for high schools.



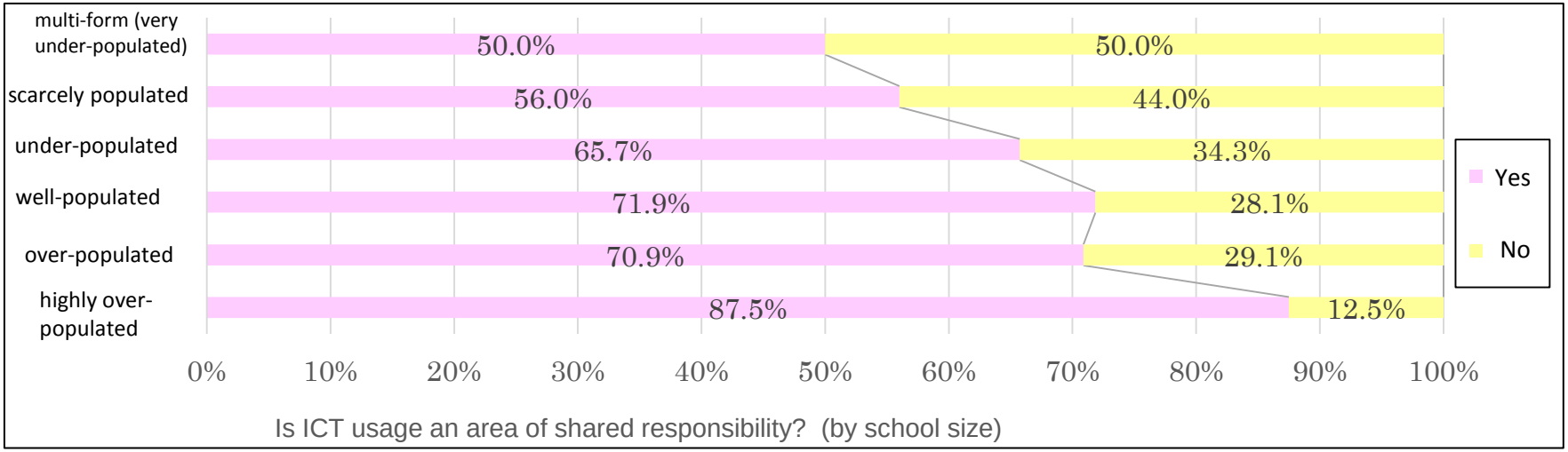
Classifications of school size based on number of classes (elementary N=271, middle N=138, high N=28)

Limited Area Survey of ICT Usage in Elementary, Middle and High Schools Summary of Results

The percentage of respondents answering that ICT was a shared responsibility among teachers in their schools was 68.3%. Schools with higher populations tended to have higher percentages replying that ICT was a shared responsibility in the school.



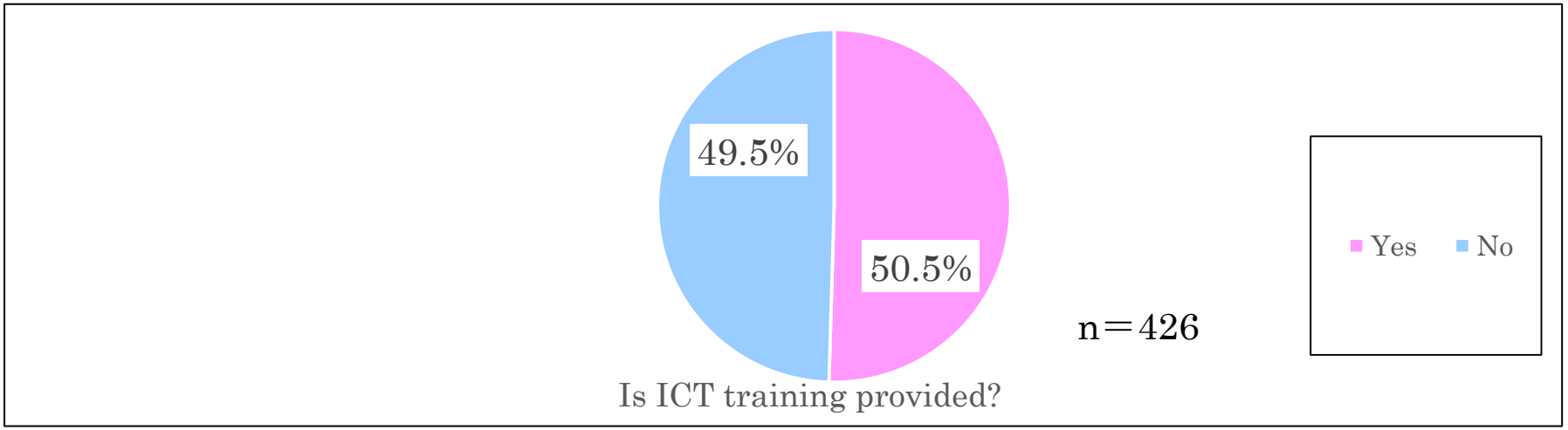
Is ICT usage an area of shared responsibility?

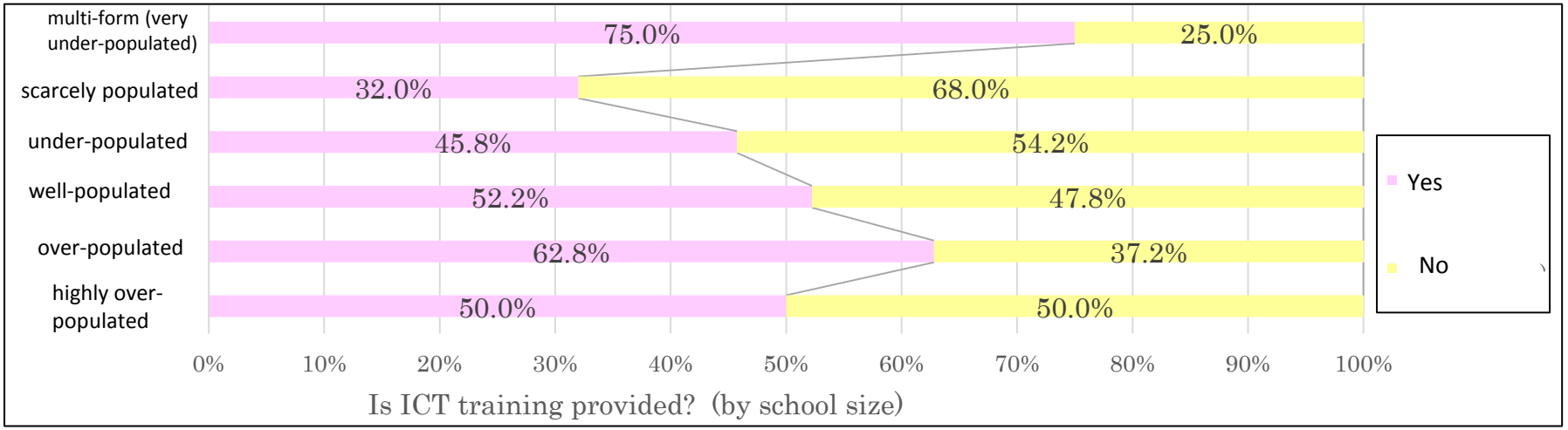


Is ICT usage an area of shared responsibility? (by school size)

Limited Area Survey of ICT Usage in Elementary, Middle and High Schools Summary of Results

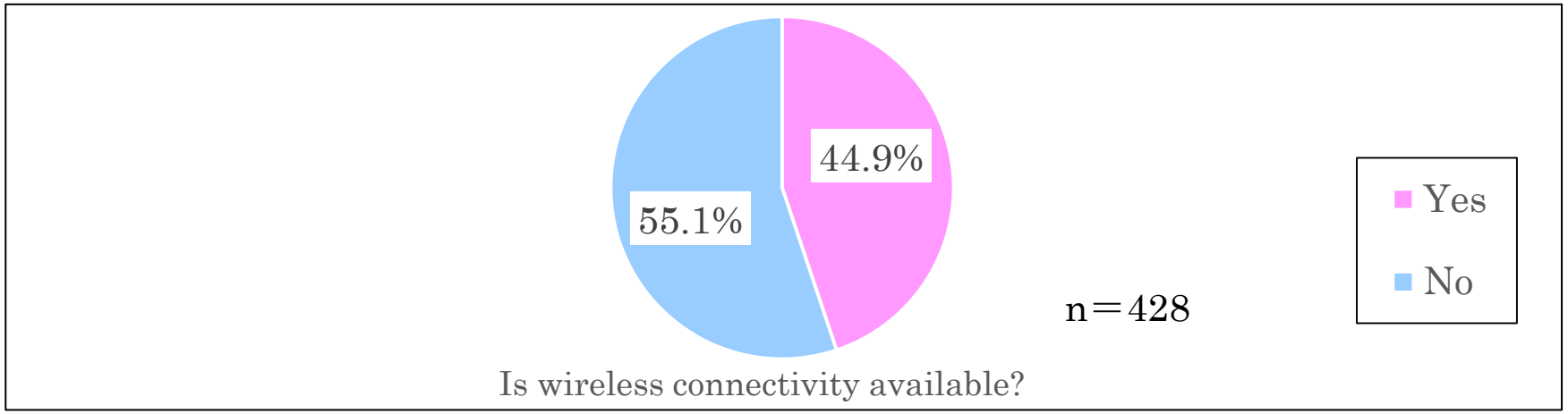
On the question of internal training in ICT, about half answered that training is provided. More than half of under-populated and low population schools did not provide training.

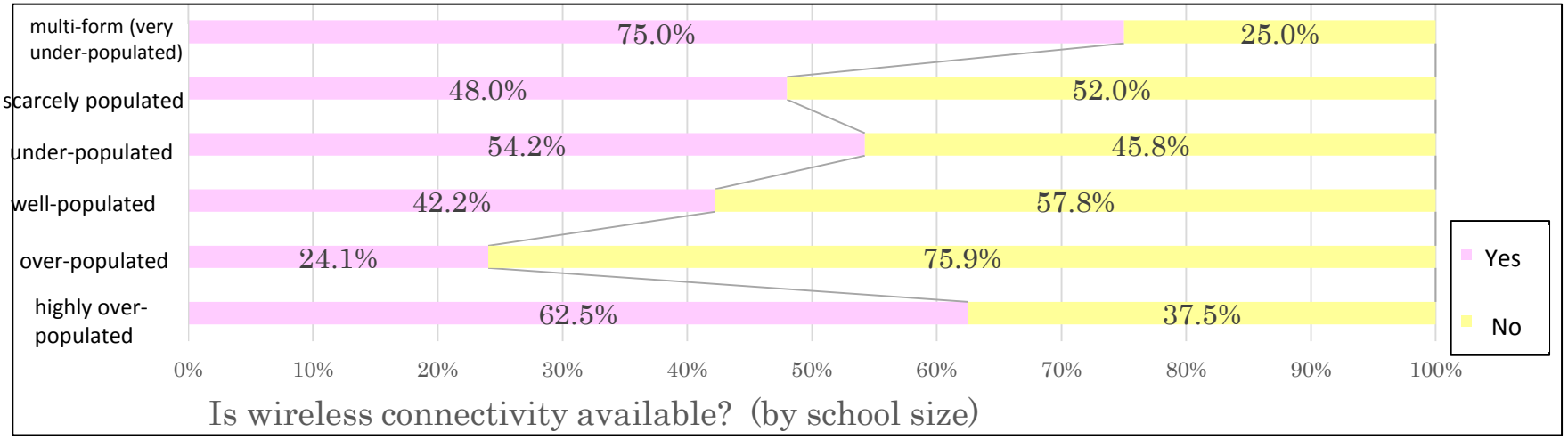




Limited Area Survey of ICT Usage in Elementary, Middle and High Schools Summary of Results

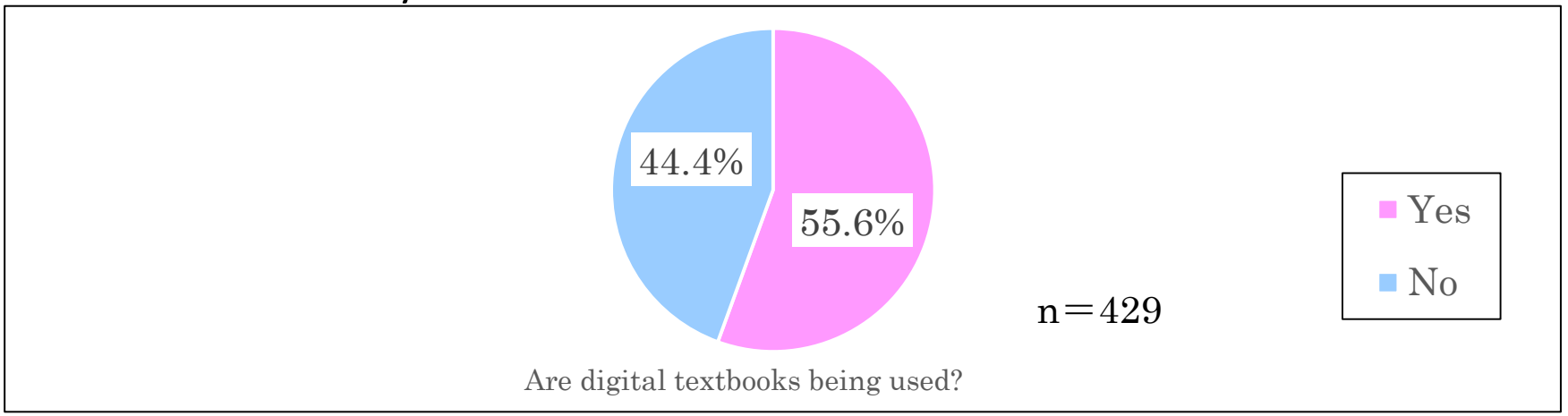
The percentage of schools reporting that they had wireless connectivity was 44.9%. The percentage of over-populated schools having connectivity was relatively lower.

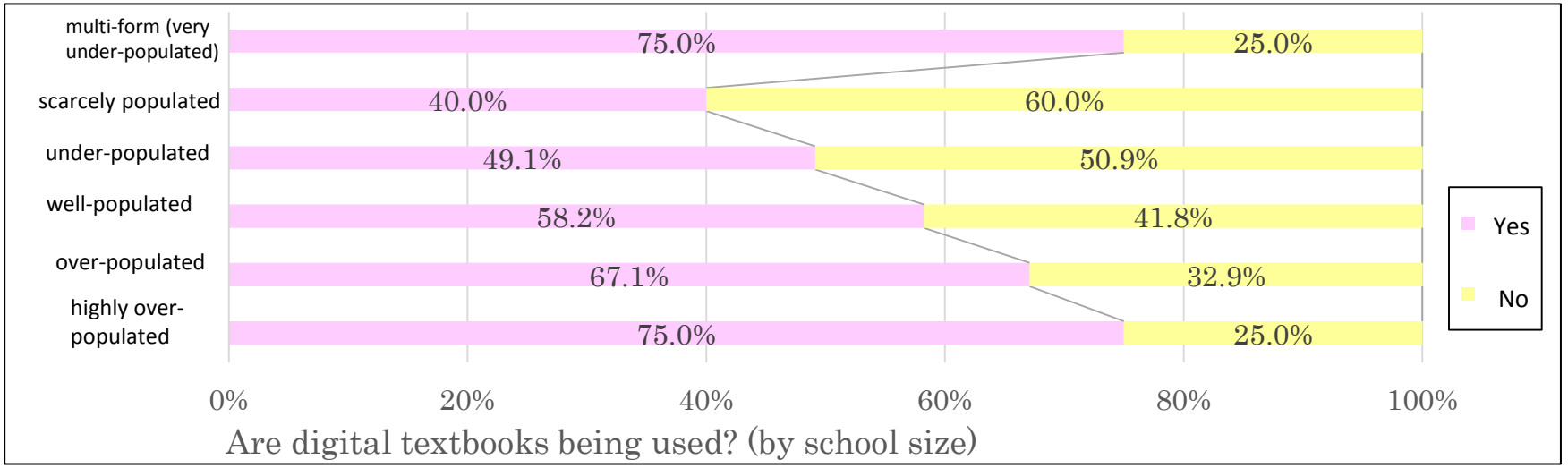




Limited Area Survey of ICT Usage in Elementary, Middle and High Schools Summary of Results

In response to whether or not digital teaching materials were used, 55.6% of schools answered “yes”.





Limited Area Survey of ICT Usage in Elementary, Middle and High Schools
Summary of Results

- Although it is not possible to do a simple comparison, indications are that the percentage of elementary, middle, and high schools that have set up shared responsibility for ICT usage, implemented internal training in ICT, and installed wireless networks is low in comparison to the percentage of special education schools that have taken these steps.
- We learned that more than half the schools surveyed use digital textbooks. From cross-tabulations done based on school size, we can see the percentage of schools using digital textbooks increases as school size increases.
- In the same way, one can infer from the results for special education schools that having a key person responsible for ICT, providing training, creating guidebooks, and making other improvements to variables within the internal control of schools, are important elements in promoting the use of ICT.