

Computer Literacy of University Students in Japan

2019.05.11

Aiko Fukazawa

4th year student of Osaka Jogakuin University,
International Communication Course

Outline

- ❖ Why I chose this topic
- ❖ Introduction
- ❖ Literature review
- ❖ Research
 - Research questions
 - Research methodology
 - Results
 - Discussion
 - Limitations



Why I chose this topic

- ❖ Some students seem to have difficulties using a computer.
 - ex.)“How do I input uppercase letters?”
 - ex.)“How do I reboot this computer?”
- ❖ I wanted to find the causes of computer illiteracy.
- ❖ I wanted to help students to study more efficiently.
 - “Having **confidence** and **competence** should assist the technology user to not deal with the technology, but deal with the task instead.” (Murray & Blyth, 2011, p. 307)

Introduction

- ❖ This study investigates current situation of computer literacy
- ❖ Computer literacy is needed to develop digital literacy
- ❖ The spread of smartphones and tablet devices and decreasing rate of computer ownership make people computer illiterate
- ❖ In my research, ownership of a computer was related to the score of computer literacy quiz.

Computer literacy ≠ Information literacy

❖ Computer literacy is defined as:

➤ Having the basic **knowledge** and **skill** of computer technology, positive attitudes, and little or **no anxiety** about using computer technology (Tsai,

2002, p. 66)

➤ PC literacy means “the skill of using computers and software.”

Information literacy means “the skill of handling and utilizing information.” (Nishida, n.d.)



water



Web 画像 動画 ニュース

日本 セーフサーチ 標準 いつでも

最新ニュース

Water/sewer/streets
Technician V (water
Maintenance) job with
Arlington County (Virg...

Arlington County's
Department of
Environmental Services
(DES) is seeking an
experienced technicia...

Washington P... | 1h

Cancer water? Unsafe
drinking water puts
15,000 Californians at
risk, study says

Federal regulations won't
necessarily protect you
from cancer-causing
water in California. In a
new Environmental Wo...

Merced Sun-S... | 55m



Water is an economic
issue, not just an
environmental issue

The Hill | 10h

Water

Water is a transparent, tasteless, odorless,
and nearly colorless chemical substance
that is the main constituent of Earth's
streams, lakes, and oceans, and the fluids of
life. Its chemical formula is H₂O, meaning that each
molecule contains one oxygen and two hydrogen atoms
bonded together by covalent bonds. [Wikipedia](#)

Can use search engine
Can input letters
→Computer Literacy

→ ニュースをさらに表示

Commercial Oil Water Separator | Pacific Marine & Industrial 広告

www.pacificmarine.net | [広告を報告](#)

Marine Bilge Water and Industrial Oil Water Separators that Remove Oil from Water
Online Catalog. Trusted Since 1985. Email for Quick Reply.
Oil Water Separators, Marine Deck Products, Company Information

Promotional Label Water 広告

www.BottledWater.com

Promote Your Company or Organization On Bottled Water As Low As .33
Ea.

Water - Wikipedia

<https://en.wikipedia.org/wiki/Water>

Water (H₂O) is a polar inorganic compound that is at room temperature a tasteless and
odorless liquid, nearly colorless with a hint of blue. This simplest hydrogen ch
drogenide is by far the most studied chemical compound and is described as the "universal solvent" for
its ability to dissolve many substances.

Can utilize, compare, and output
information
→Information Literacy

Water.com Bottled Water | Delivery Service

<https://www.water.com>

Water.com is the most popular bottled water provider. Buy bottled water for your home
and office. Discover coffee and tea selections.

Water - definition of water by The Free Dictionary

Computer literacy \neq Information literacy

- ❖ The skill of using a computer
 - turning on / off a computer
 - familiarity with using a keyboard
 - searching the internet
 - using Microsoft's software to make / edit documents, slides, and spreadsheets
 - using e-mail

(Cote & Milliner, 2018, pp. 83-84; Murray & Blyth, 2011, p. 314)

Digital literacy

❖ Why do we need computer literacy?

- Without it, we cannot develop our digital literacy.

❖ Digital Literacy

- the capabilities required **to thrive** and be an effective and **responsible** participant, **in a digital society**.” (AdvanceHE, 2017)
- “the ability to **find, evaluate, utilize, share, and create** content using information technologies and the Internet.” (Lynch, 2017)

Four dimensions of digital literacy

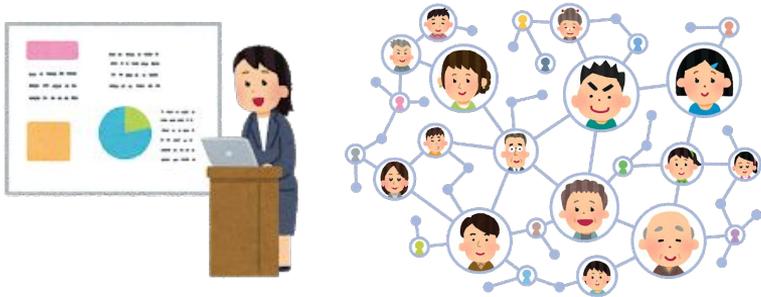
Technological dimension



Cognitive dimension



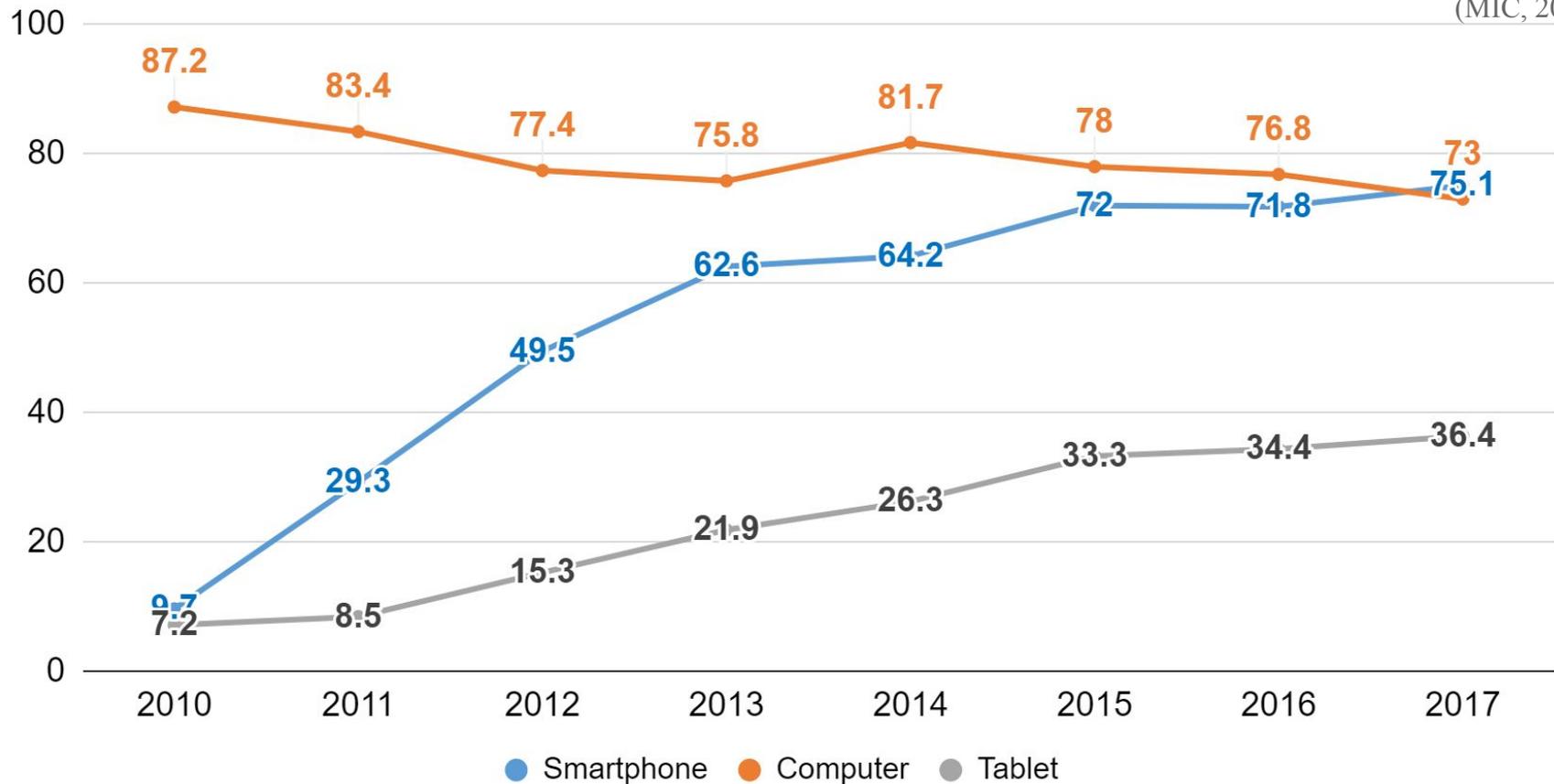
Ethical dimension



**Integration between the three
dimensions**

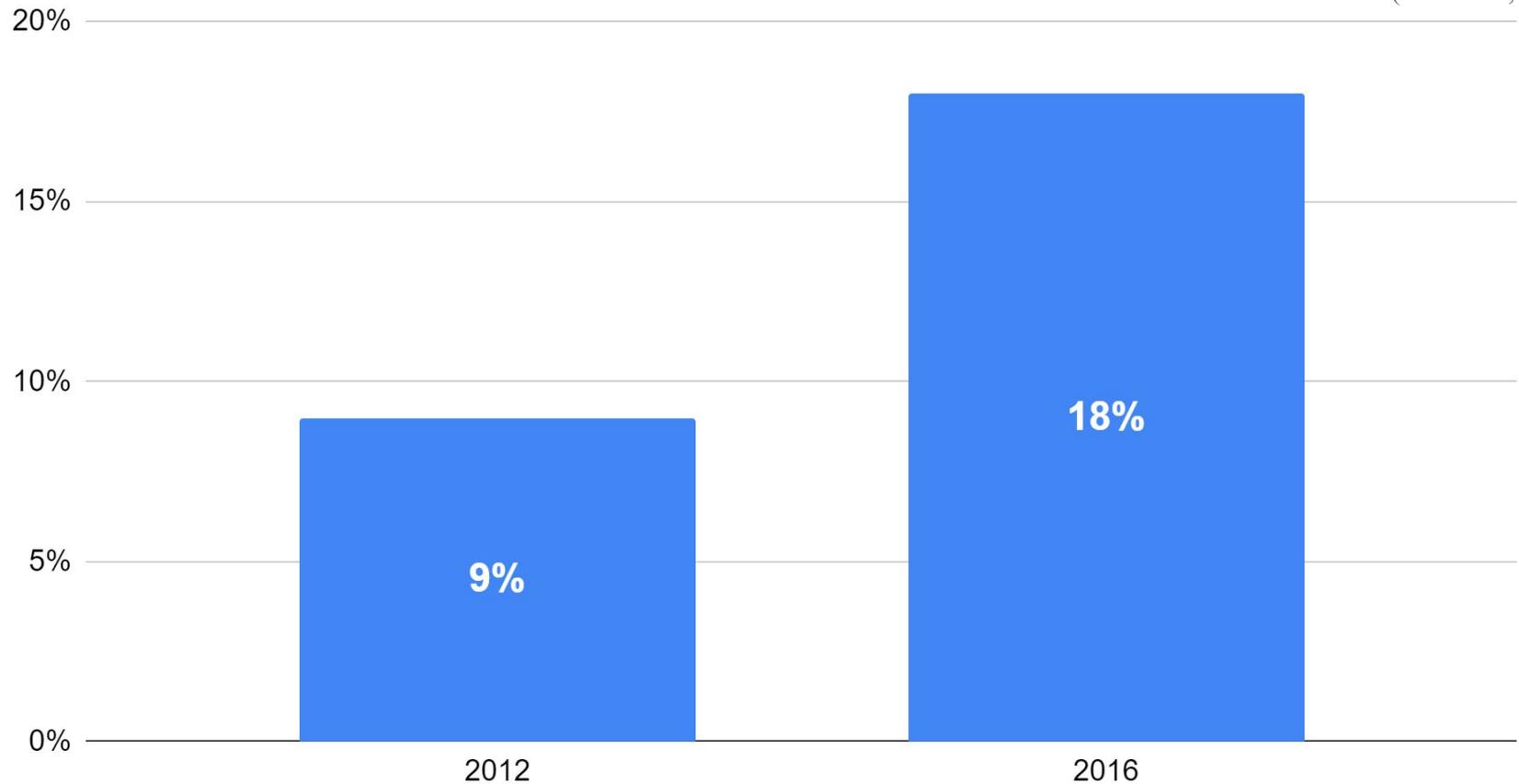
Ownership rate of computers, smartphones, and tablets in Japan (%)

(MIC, 2018)



Number of new OJU/OJC students who did not have a traditional computer in their home (%)

(Komatsu, 2017)



Why do university students lack computer literacy?

❖ Lack of teachers' skills and time

- Japanese teachers: 53.9 hours a week (MEXT, 2013)
- Anxiety about cheating and addictiveness (Toyofuku, 2015)

❖ Lack of motivation?

- “Information” class focuses too much on “how to use” (Nikkei, 2014)

Research questions

1. How well do students in OJU / OJC use computers?
2. How much do students improve their computer literacy while at university?

ex) 4th year student → Is she confident about using a computer?

3. Does using an iPad help students to improve their computer literacy?

...Is using an iPad helpful for students?

Research methodology: Questionnaire (46 questions)

❖ Part 1: Survey (10 questions)

- Native language
- Year (1st ~ 4th years) and affiliated (Student / Teacher / Office staff / LSC staff / Others)
- Questions related to computer, smartphone, and iPad: ownership rate, frequency of use

Research methodology: Questionnaire (46 questions)

- ❖ Part 2: Quiz (35 items: 33 MCQs + 2 survey MCQs)
 - Turning on / off a computer
 - Keyboard shortcuts
 - Microsoft Office software: Word, Excel, Powerpoint
 - E-mail
- ❖ Likert scale feedback + optional comment field (1 question)

4

改行するにはどのキーを使いますか？ [Which key is used to make a new line?]

- Enter
- スペースキー [Space]
- Tab
- Insert
- わからない [I don't know]

12

大文字のアルファベットを入力するには？ → ____ を押しながらアルファベットを入力する
[How do you input uppercase letters? → input letters while pressing ____]

- Alt
- F5
- Shift
- Backspace
- わからない [I don't know]

Research methodology

- ❖ Questionnaire distributed from April 22nd ~
- ❖ Online survey / Printed survey
- ❖ Ways to distribute
 - sending a link by e-mail
 - distributing a printed QR code
 - distributing a printed survey

Computer Literacy GP Survey (716015 Aiko Fukazawa)

1. Survey on Computer Literacy

研究調査のお願い: Computer Literacy of University Students in Japan「日本の大学生のコンピューターリテラシー」

このアンケートへの回答には約10分程度かかります。参加していただけるかどうかは各人の判断にお任せします。この研究が皆さんにとって何らかの利益に直接結び付くものではありません。この研究から辞退されても、皆さんが現在履修しているクラスに何の影響もありません。皆さんからいただくデータはプライバシーを厳守します。調査結果は研究者により分析され、その結果は研究者と授業担当の先生にだけ報告されます。このデータを公表することにおいて、それが個人的に特定されることはないことをお約束します。あなたの参加は授業改善と語学教育の向上に繋がります。

質問があれば、下記をお願いします。
研究者 深澤 愛子 (Aiko Fukazawa) : fa716015@wilmina.ac.jp
研究指導 Stuart McLean: mclean@wilmina.ac.jp

This research project is investigating Computer Literacy of University Students in Japan. It takes about 10 minutes to answer this survey. Your participation will help improve contents of classes. Participation in this study is voluntary. There is no direct benefit to participating in this study. Even if you decline to



Research methodology

- ❖ Participants: 181 (150)
 - 1st year students: 40 (30)
 - 2nd year students: 33 (30)
 - 3rd year students: 29 (26)
 - 4th year students: 35 (28)
 - Teachers: 17 (14)
 - Staff: 21 (17)
 - LSC staff: 2 (2)
 - Others: 4 (3)
 - Adults 3 (2)
 - A student on
studying abroad (1)

Q1. How well do students in OJU / OJC use computers?

Lowest, median, highest, and mean score of participants

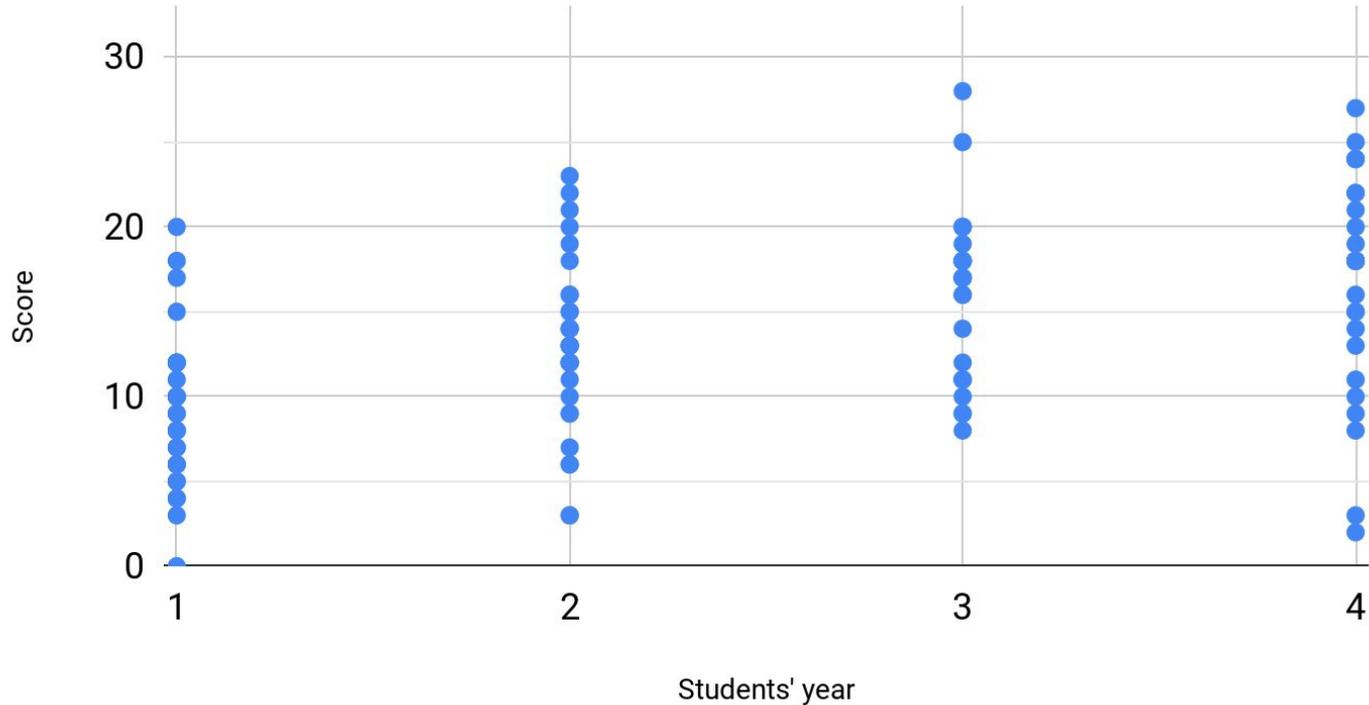
	Total (150)	1st year (30)	2nd year (26)	3rd year (28)	4th year (28)
Lowest score	0	0	3	8	2
Median score	16	9	13	17	18
Highest score	32	20	23	28	27
Mean score	15.7	9.1	13.0	16.0	16.8

Q1. How well do students in OJU / OJC use computers?

	Teachers (14)	Staff (17)	LSC (2)	Others (4)
Lowest score	11	7	30	15
Median score	25	23	30	16
Highest score	29	28	30	32
Mean score	23.3	20.6	30	21.0

Q2. How much do students improve their computer literacy while at university?

Comparison of students year and score (114 students)



Q2. How much do students improve their computer literacy while at university?

❖ Comparison of confidence using a computer and year

	1st year (40)	2nd year (32)	3rd year (29)	4th year (35)
Very good at it	0% (0)	13% (4)	3% (1)	6% (2)
Good at it	23% (9)	28% (9)	34% (10)	34% (12)
Neither	25% (10)	41% (13)	38% (11)	31% (11)
Bad at it	30% (12)	16% (5)	24% (7)	20% (7)
Very bad at it	23% (9)	6% (2)	0% (0)	9% (3)

Q3. Does using an iPad help students to improve their computer literacy?

❖ Comparison ownership of a computer by year and affiliation

	1st year (40)	2nd year (33)	3rd year (29)	4th year (35)
I own a PC individually.	13% (5)	15% (5)	31% (9)	49% (17)
I have a PC, but I share it with my family.	50% (20)	64% (21)	52% (15)	40% (14)
I do not have a PC.	38% (15)	21% (7)	17% (5)	9% (3)
Others	0% (0)	0% (0)	0% (0)	3% (1)

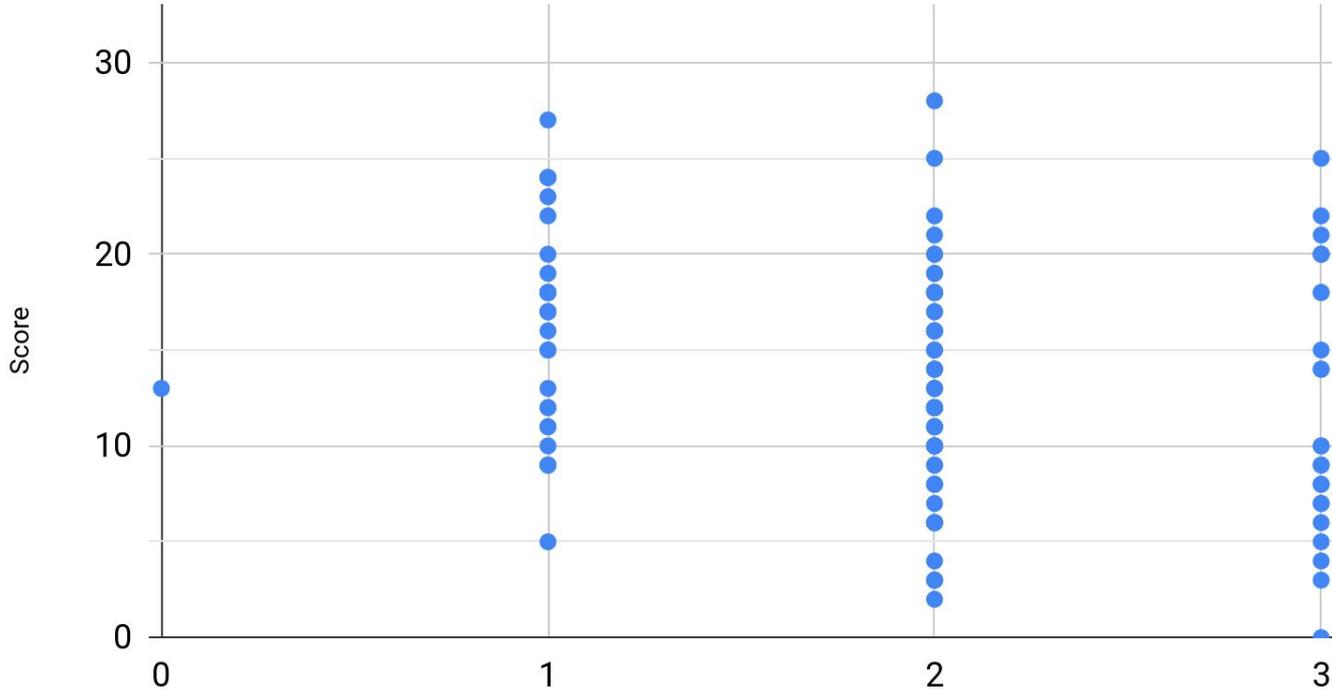
Q3. Does using an iPad help students to improve their computer literacy?

❖ Comparison ownership of a computer by year and affiliation

	Teachers (17)	Office staff (21)	LSC staff (2)	Others (4)
I own a PC individually.	100% (17)	71% (15)	50% (1)	75% (3)
I have a PC, but I share it with my family.	0% (0)	24% (5)	50% (1)	25% (1)
I do not have a PC.	0% (0)	5% (1)	0% (0)	0% (0)
Others	0% (0)	0% (0)	0% (0)	0% (0)

Q3. Does using an iPad help students to improve their computer literacy?

Comparison of ownership of a computer and score (114 students)



Q. Do you have your personal computer?

1 = I own a PC individually.

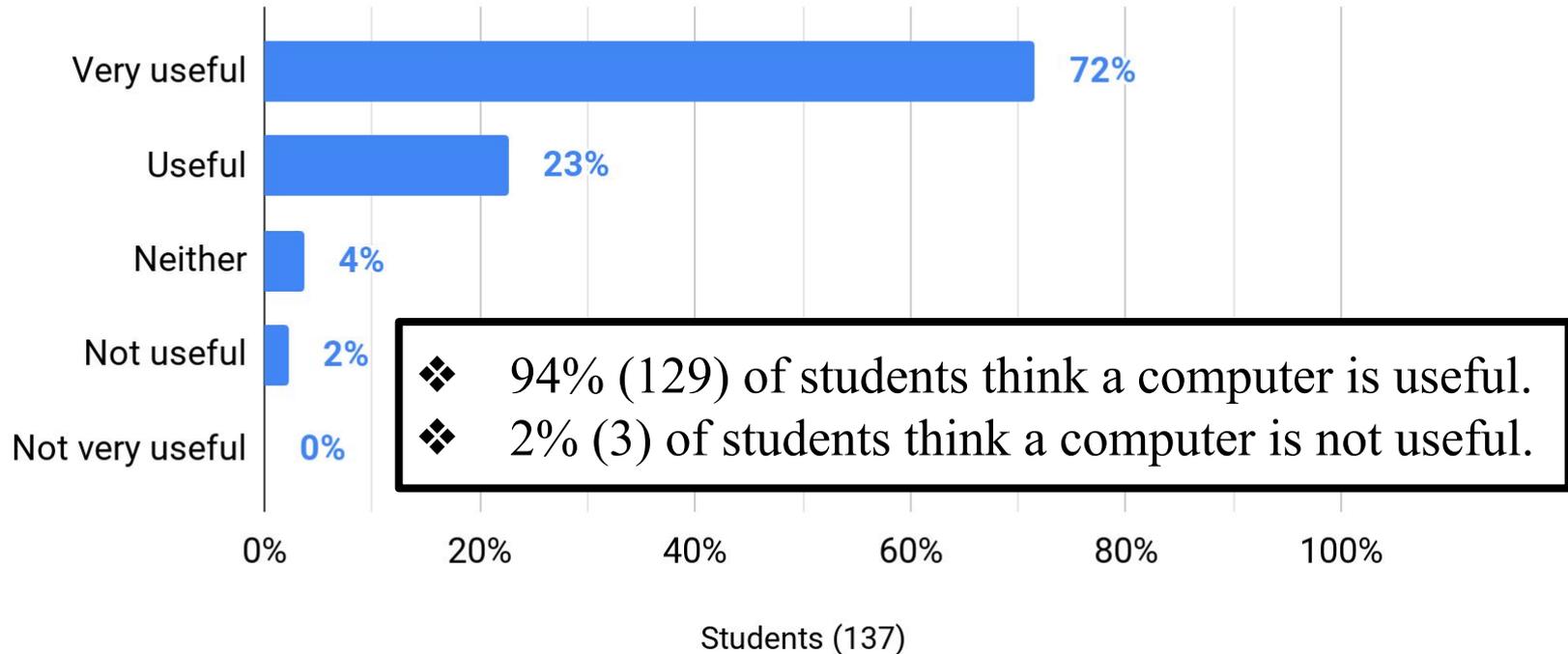
2 = I have a PC but I share it with my family.

3 = I do not have a PC.

0 = Others

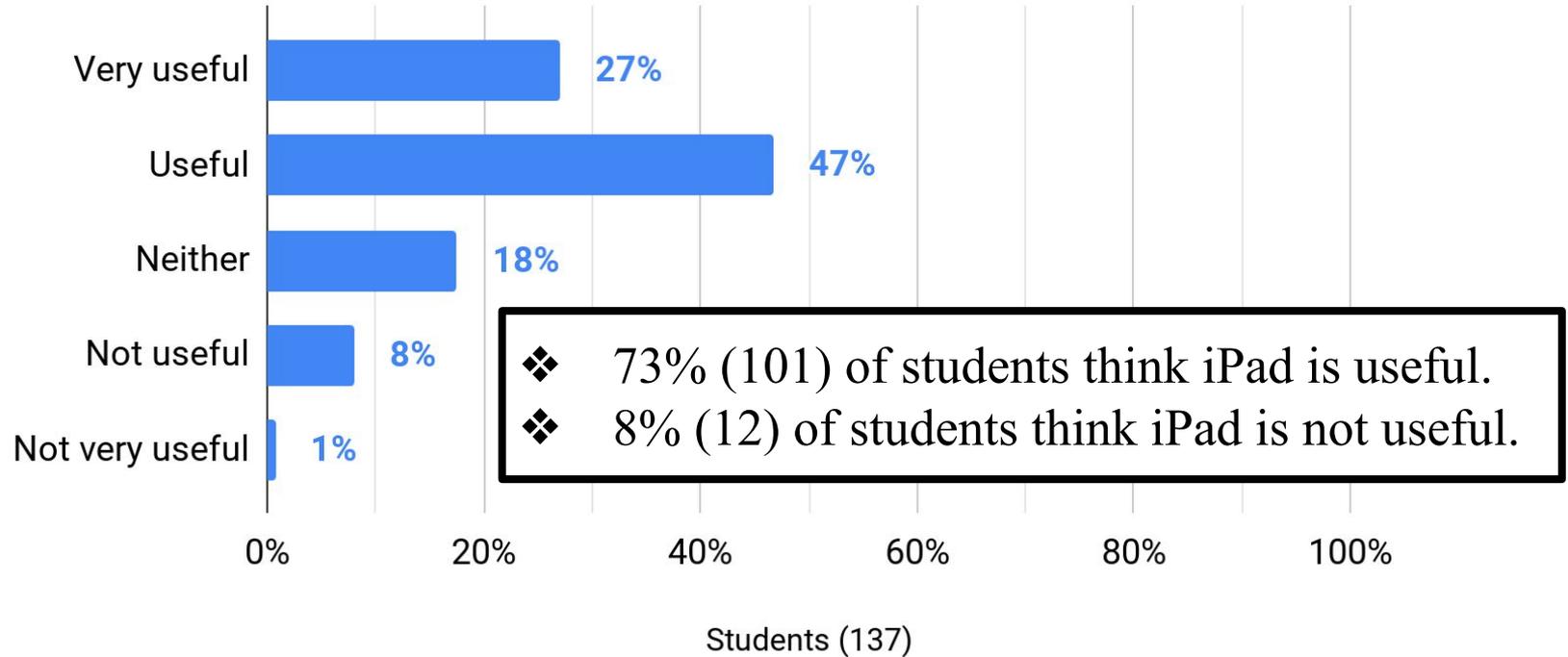
Q3. Does using an iPad help students to improve their computer literacy?

Answers to a question "Do you think a computer is useful when you go out into the world?" (137 students)



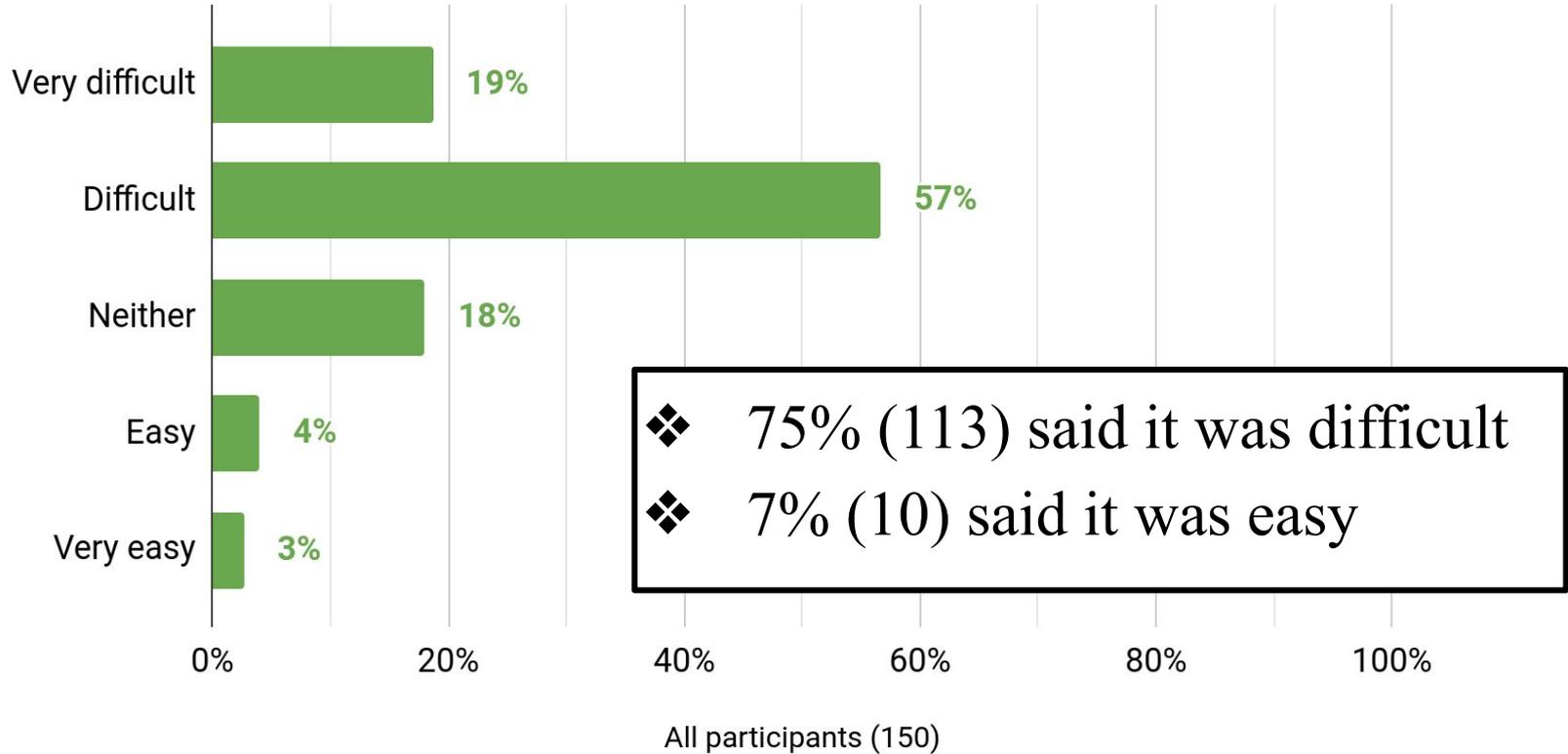
Q3. Does using an iPad help students to improve their computer literacy?

Answers to a question "Do you think iPad is useful when you go out into the world?" (137 students)



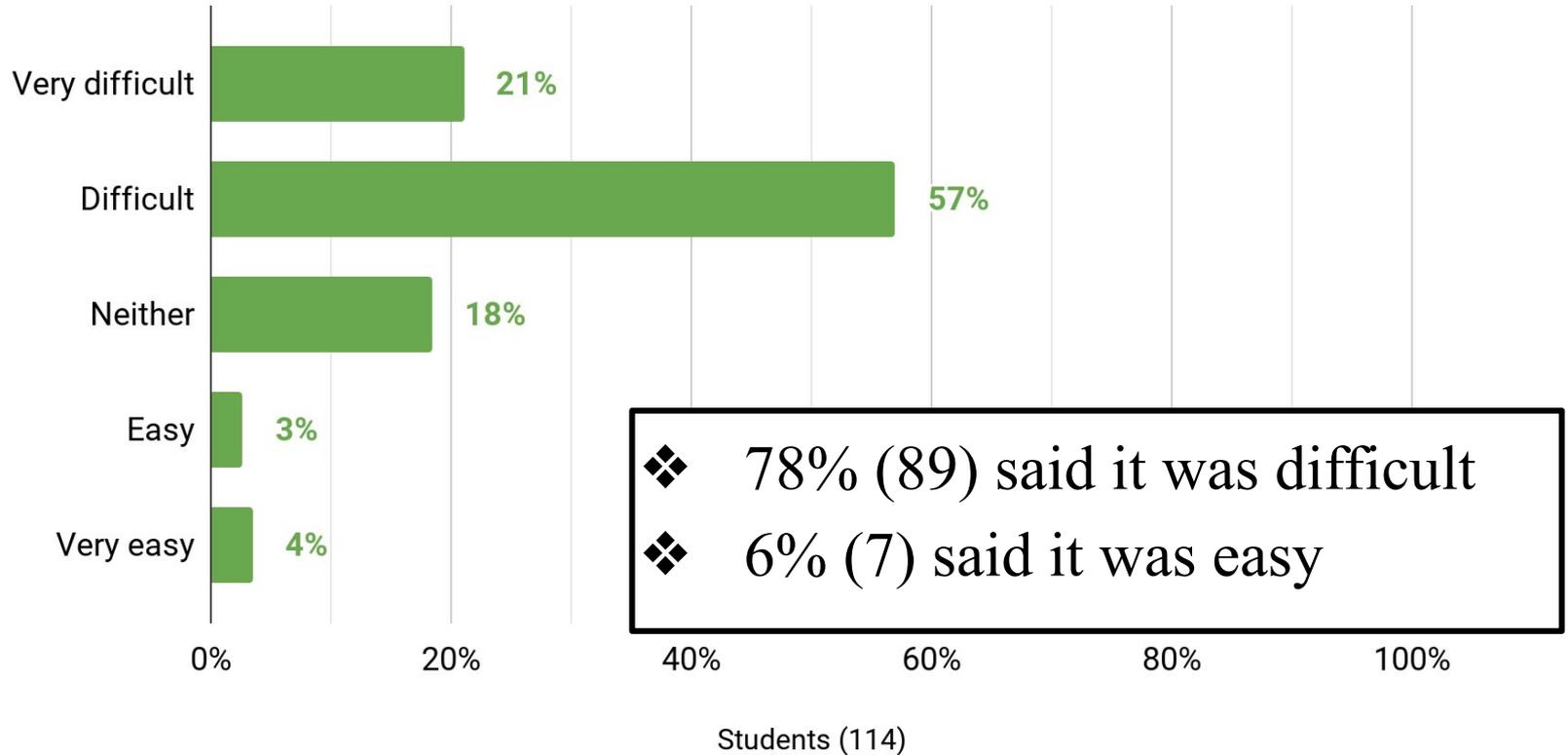
Feedback

All participants' feedback to the survey (Total: 150)



Feedback

Students' feedback to the survey (Total: 114)



Discussion

- ❖ As students' grade advanced...
 - the score of the quiz becomes higher (they get knowledge of a computer)
 - they get more confidence
 - ownership rate of a computer increases
- ❖ Having a computer is related to the score
- ❖ Many students think a computer is more useful than iPad when they go out into the world

Comments to the survey: positive comments

- ❖ Learning outside the class would be difficult if I were not interested in learning about it. (授業で学んだこと以外のことは、興味がなかったら難しいと思った。)
- ❖ I did not understand many items and I also found new things. (分からないことも多く、新しい発見がありました。)
- ❖ I realised how I lacked knowledge about a computer. This questionnaire is very useful. (私のコンピュータの知識が乏しいことを痛感した。 ためになるであろうアンケートだったと思う。)
- ❖ I want to know explanations to the questions. (解説が知りたいと思いました！)
- ❖ I forgot what I learned in classes in the first year. It was a little bit difficult. (1年生の時のデジタルネットワークや情活で学習したこともあったが忘れていた。少し難しかった。)

Comments to the survey: negative comments

- ❖ Too hard, I can't remember at all
- ❖ It was difficult. (難しい)
- ❖ It was long. (長い)
- ❖ Questions were difficult. (質問が難しかった。)
- ❖ There were many questions related to shortcuts I didn't know. (パソコンのショートカットキーについてわからない問題が多かった。)
- ❖ I do not use shortcut usually so I checked "IDN" to many questions. (ショートカットを普段使わないので「わからない」ばかりで恐縮です。)

Comments to the survey: criticisms

- ❖ Questions were not so simple (キーを答えるところが、少々、分かりづらかったです。)
- ❖ I use an English / American keyboard and we just use the CAPS LOCK button.
- ❖ It is about Microsoft windows 10 and Microsoft office. I use Macintosh computers.
Some of the commands are different.
- ❖ Some assumptions were made that might lead to wrongly concluding that Mac people are not computer literate.
- ❖ The use of "how many times a day do you use... " is not the best choice.
- ❖ I think computer literacy is also knowing how to fix problems, both hardware and software.

Limitations

- I should have distributed the survey earlier
- It was better not to divide the survey into two pages
- The quiz was too difficult for participants
- If I could do the research again...
 - I want to make a digital literacy survey
 - the quiz focused too much on manipulation
 - Knowledge related to Mac OS should be included
 - × How often do you use... ○ How long do you use...

References

AdvanceHE. (2017, May). Digital literacies. Retrieved May 2, 2019, from AdvanceHE website:

<https://www.heacademy.ac.uk/knowledge-hub/digital-literacies>

Calvani, A., Cartelli, A., Fini, A., & Ranieri, M. (2008). Models and instruments for assessing digital competence at school. *Journal of E-Learning and Knowledge Society*, 4(3), 183–193.

Cote, T., & Milliner, B. (2018). A survey of EFL teachers' digital literacy: a report from a Japanese university. *Teaching English with Technology*, 18(4), 71–89.

Lynch, M. (2017, October 23). What is digital literacy? Retrieved May 4, 2019, from The Tech Edvocate website:

<https://www.thetechedvocate.org/what-is-digital-literacy/>

Komatsu, Y. (2017). Tablet tanmatsu wo katsuyou sita hanten jugyou no hyouka to bunseki: Kako 9 nenkan no jugyou hyouka no suii hikaku kara. [An evaluation and analysis of the flipped classroom using tablet-type devices: From trends comparison of a class evaluation and the learning result for the past 9 years]. *Journal of Osaka Jogakuin University*, (13), 107–120.

References

- The Nikkei. (2014, September 17). Koukou no jyouhou kamoku, hisshuu ha na bakari kantan pasokon sousa dake [Information class in high school, compulsory only in name. only easy manipulation of a computer]. Retrieved May 5, 2019, from https://www.nikkei.com/article/DGXLASDG15H0U_W4A910C1CC1000/
- Ministry of Education, Culture, Sports, Science and Technology. (2014). Waga kuni no kyounin (zenki tyutou kyouniku dankai) no genjou to kadai: Kokusai kyounin sidou kankyou tyousa (TALIS) no gaiyou. [Current situation and issues of our teachers (pre-secondary education stage): The result summary of Teaching and Learning International Survey (TALIS)]. Retrieved July 9, 2017, from http://www.mext.go.jp/b_menu/shingi/chousa/shotou/103/shiryo/___icsFiles/afieldfile/2014/10/20/1352644_09.pdf
- Ministry of Internal Affairs and Communications. (2018). Heisei 30 nendo ban jouhou tsuushin hakusho: Jouhou tsuushin kiki no hoyuu joukyou [A white paper of information and communication 2018: situation of ownership of information and communication devices]. Retrieved May 5, 2019, from <http://www.soumu.go.jp/johotsusintokei/whitepaper/ja/h30/html/nd252110.html>
- Murray, A., & Blyth, A. (2011). A survey of Japanese university students' computer literacy levels. *The JALT CALL Journal*, 7(3), 307–318.

References

- Nishida, T. (n.d.). Koutou gakkou ni okeru kyouka jouhou kanren no genjou to kongo no tenbou [Current situation and future of information class in high schools]. Retrieved May 1, 2019, from <https://www.cmc.osaka-u.ac.jp/publication/for-2005/05-10.html>
- Toyofuku S. (2015). Nihon no gakkou kyouiku jouhouka ha naze teitai suru noka: Gakushu sha tyuusin ICT katsuyou heno tenkan. [Why has informatization of education in Japanese schools stagnated? : Movement to learner centered ICT utilization]. *Information Processing*, 56(4), 316–321.
- Tsai, M.-J. (2002). Do male students often perform better than female students when Learning computers?: A study of Taiwanese eighth graders' computer education through strategic and cooperative learning. *Journal of Educational Computing Research*, 26(1), 67–85. doi: 10.2190/9JW6-VV1P-FAX8-CGE0.

Principle Investigator: 深澤 愛子 (Aiko Fukazawa), fa716015@wilmina.ac.jp

Research supervisor: Stuart McLean, stuart@wilmina.ac.jp

Thank you for listening.

Any questions?