A Study of
the Utilization of "Information and Communication Technology (ICT)" in Japanese Junior High Schools

日本の中学英語クラスにおける ICT 利用についての一考察

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Abstract：日本政府は 2020 年までにすべての学習者にタブレットを配布するという方針であるが、現職の英語教員をはじめ、電子黒板などデジタル機器の効果的な使用にはまだ明確ではないのが現状である。本稿では中学校における英語学習現場でデジタル機器を導入した事例を調べながら、文部科学省によるデジタル機器の利点、学生のアンケート調査結果を踏まえ、英語教育現場とデジタル機器利用について考察していく。

keywords: ICT, junior high school, English class

1. Introduction

The use of Information and Communication Technology (hereafter, ICT) is getting more attention in Japanese schools. According to the *Nihonkeizai newspaper* dated January 1st, 2014, the Japanese government is planning to distribute tablets to all students by the end of 2020.

This paper first examines the current situation of utilizing ICT in English classes at junior high schools through five case reports found on the Internet. Secondly, the research and suggestion of using ICT in schools by the Ministry of Education, Culture, Sports, Science and Technology of Japan (hereafter, MEXT) are reviewed. Thirdly, a questionnaire among college students regarding the use of ICT in English classes is presented. Lastly, concluding thoughts regarding ICT use in junior high school English classes are given.

2. Case 1

This is a case in 2011 when a junior high school teacher in Saitama City, Saitama Prefecture was teaching the present past tense to second graders in class. He was using a digital white board on which the itinerary of their school trip to Kyoto was shown. He referred to the departure and arrival times while pointing them on the screen. Following this, he displayed a picture of a bullet train travelling towards Kyoto station. His intention was to have his students picture the train entering Kyoto station, which allows them to understand the English expression, "The train has not arrived at the station."

The teacher states two strong points concerning ICT as follows:

(1) Through the use of tablets, teachers can get their students to concentrate on the contents of the screen.
(2) Teachers can have their students picture what is going to be explained with visual aids on computer screens.

3. Case 2

This is a case of a first grade junior high school class in Toyota City, Aichi Prefecture in 2012. Students practiced a self- introduction in English using examples from their textbook. The procedures were as follows:

(1) Teachers advise on their presentations, while showing a digital textbook on the board, which contains their voices, postures and manners as a listener.
(2) Students practice their pronunciation repeatedly with the help of their digital textbook.
(3) Students make drafts for their self-introductions using presentation soft-ware.
(4) An assistant teacher, a native speaker of English, checks the students' drafts.
(5) Students present their self-introduc- tions featuring some photos on the screen.

The teachers evaluated this activity highly in that the use of computers including the digital textbooks enabled students to conduct an advanced self-study. They were willing to search English expressions for describing their own features, which made it possible to enrich their vocabulary. As a result, their self-confidence was fostered, which can further develop their attitudes of self-expression. Later, questionnaires revealed that many of them came to like learning the English language.

4. Case 3

This a case in 2012 when a video-conference system was used by a first grade teacher and an ALT of a junior high school in Takeo City, Saga Prefecture. Firstly, the teachers taught some useful expressions for self- introduction, followed by students integrating their own ideas. Secondly, they sent a model for a self-introduction to their students' tablet computers to facilitate the preparation. Thirdly, they showed all the students' drafts on the digital white board for sharing the contents, while checking the usage of their English. Finally, using a video-conference system, students introduced themselves to an American family of the ALT in charge of the class.

The teachers stated that the advantages of using ICTs are that they can show all the self-introductions at once on the screen, and students are motivated through the experience of having real communication in English. Furthermore, in writing drafts, they can be more attentive in English writing because they know their drafts are shown later on the board before class. As a final comment, they mentioned that interaction with foreign people can raise even poorly motivated students' interests and motivation in English language learning.

5. Case 4

This is a case in 2011 where a second grade teacher at a junior high school used a digital textbook. She started her class with an aural reading in the form of a chorus reading as well as a role play, when she utilized the digital textbook for pronunciation practice, followed by grammar instructions on the digital whiteboard. And then, her students practiced the learned grammar through worksheets as well as conducting a skit done in pairs. Finally, students reconfirmed their comprehension of the newly learned grammar and words by listening to the digital textbook.

She pointed out that a digital textbook and a whiteboard were effective in that she could show all the passages on the board at once, while adding some explanation with a touch pen. Moreover, she argued that those devices were useful when she got them to practice new words or expressions repeatedly through just one touch on the board.

6. Case 5

This is a case where an e-mail and a video-conference were used at a third grade class of a junior high school in Machida City, Tokyo in 2007. The teacher in charge of the class decided to participate in this project as a part of the activities involved in a Japan-Australia Exchange Program authorized by both governments. The Japanese students were to interact with the Australian elementary school students through video- conferences and e-mails.

Before actually interacting on the Net, the Japanese students rehearsed for the video-conference with an ALT several times. They mainly practice the ways of asking questions to their interlocutors. Afterwards, they communicated with the Australian elementary school students through the video-conference. Their topics were Japanese cultures, based on which they gave some quizzes to their Australian counterparts.

Furthermore, they exchanged emails with each other. Before that, the teacher had them write a diary for about three months so as to get them used to English writing.

Through those activities, the teacher insisted of the advantages of video- conference in that communication can be facilitated to the extent that students in both countries felt as if they were located in the same place. Above all, they came to view the English language as a communication tool rather than a school subject.

7. Advantages of Using ICT in Class indicated by the Government of Japan

MEXT diffuses the means of utilizing ICT in class while aiming at enhancing both the manipulation of digital devices and global communication skills. The items below are included as advantages of using ICT in foreign language classes in the guidebook by MEXT.

(1) Magnification function of data on the screen, which helps to clarify the details of given photos or diagrams.
(2) Multiple options for teaching English language. For example, when teachers introduce new words to students, s/he shows its image on a digital white board, presents the spelling, and then have them practice the pronunciation with audio aids.
(3) Use of digital cameras or video cameras with tablets, through which, teachers may have their students make a skit using expressions learned in class. The students create and perform a dialog, where teachers video the scene for later use as teaching materials. Students can watch this video repeatedly.
(4) Enables learners to get involved in self-study using software, whereby teachers could have learners practice pronunciation or listen to native speakers' models through the Net.

In addition to those cases mentioned above, more advantages can be listed as shown below. From the viewpoint of teachers:
(1) To produce original teaching materials using free tools on the Net or to use digital presentation tools.
(2) To present students' answers at one time on a digital white board.
(3) To get students to connect to outside places using a video-conference system.
(4) To show the real world through computer screens.

From the viewpoint of students:
(1) To practice presentations using digital tools or tablet computers.
(2) To research what they want to know through the Net.

8. Check-List and Seminar for the use of ICT

For improving teachers' skills of using ICT in class, the Japanese government presented a check-list for self-evaluation on the site of MEXT (2007, see Appendix 2).

The list includes five sections, that is, (A) skills of using ICT for producing teaching materials and evaluating students, (B) skills of using ICT during class effectively in accordance with given needs, (C) skills for instructing the use of ICT to students, (D) skills for developing consciousness towards students' morals related to information, (E) skills of using ICT for school business. Each section has four sub-items for grading by responding to the four-rating scale from "Very much so" to "Never so".

According to the guidebook published by MEXT in 2010, seminars are held to promote the improvement of teachers' skills in using ICT. The latest MEXT report based on this list from elementary schools to high schools stated that their skills have been improving year by year during the period of 2007 to 2013 (2007, see Appendix 1).

Among the items in the list, the top three answers with positive responses by teachers are as follows:

(1) Question A-2 asking about the use of the Net or CD-ROMs for preparing teaching materials.
(2) Question A-3 asking about the use of presentation digital tools.
(3) Question E-1 asking about the use of the Net or software for school business.

On the other hand, the most negatively answered question is about the skills for an effective use of ICT for instructing students.

Although the Ministry advances the participation of ICT seminars, the research in 2012 reveals only 28.2 percent of teachers from elementary to high schools joined the seminars, whereas 71.8 percent of teachers didn't. The background of this result might reflect their hard daily work at school to the extent that they cannot afford to spend time for such seminars, while the above-mentioned five cases show that teachers recognize the advantages of using ICT in class.

When the government urges school teachers to join the seminars, first and foremost, they may have to rearrange the teachers' working schedules.

9. Questionnaire Results among Students under Teacher Training

A questionnaire relevant to the ICT use in class was conducted among 37 male and female junior college students under teacher training in 2014. Before this research, they had about 3 hours of training for using digital devices including a digital white board or tablets in simulation of English class. The question items are below:

Q.1. Are you interested in the use of ICT in your future English class?
Q.2. Do you think the use of ICT could enhance students' motivation towards English language learning?
(Multiple choice questions)
Q.3. Make a list of some advantages in the use of ICT in English class.
Q.4. Make a list of some disadvantages in the use of ICT in English class.
(Open-ended questions)

As to the first two questions, the responses were based on the four-rating scale by answering "Strongly agree" to "Strongly disagree". Thirty-seven students answered the first question as follows: 19 "Strongly agree", 16 "Agree" and 2 "Disagree". As to Q. 2, ten students answered "Strongly agree", 2 "Agree" and 3 "Disagree". As for the latter two questions, the advantages pointed out by them were almost the same as what was mentioned above by MEXT. Among the described disadvantages, the following were included, that is, (1) loss of time created by technical trouble, (2) difficulties in managing students caused by the free use of the Net during class, (3) concerns about students' tiring eyes.

While MEXT appeals the strong points of digital devices, would-be teachers refer to the weak points as mentioned above. It is not until the actual use of digital devices that those disadvantages are realized. It would be more helpful if those plausible weak points are suggested when the government promotes the use of ICT.

10. Concluding Thoughts

As are shown in MEXT, the above five reported cases argue advantages in using ICT. The main advantages contain the enhancement of motivation and multiple choices for facilitated learning. The questionnaire results support those advantages although some disadvantages are pointed out.

With the improvement of technology, teachers have to keep studying to catch up with new devices. However, in reality teachers seem to be wrapped up between conducting classes and working on school business. Before introducing new technology, teachers need to be given enough time for self-improvement while considering the effective use of it in comparison with the traditional ways of teaching. Otherwise, further discussion about the effective ways of using ICT would be difficult.
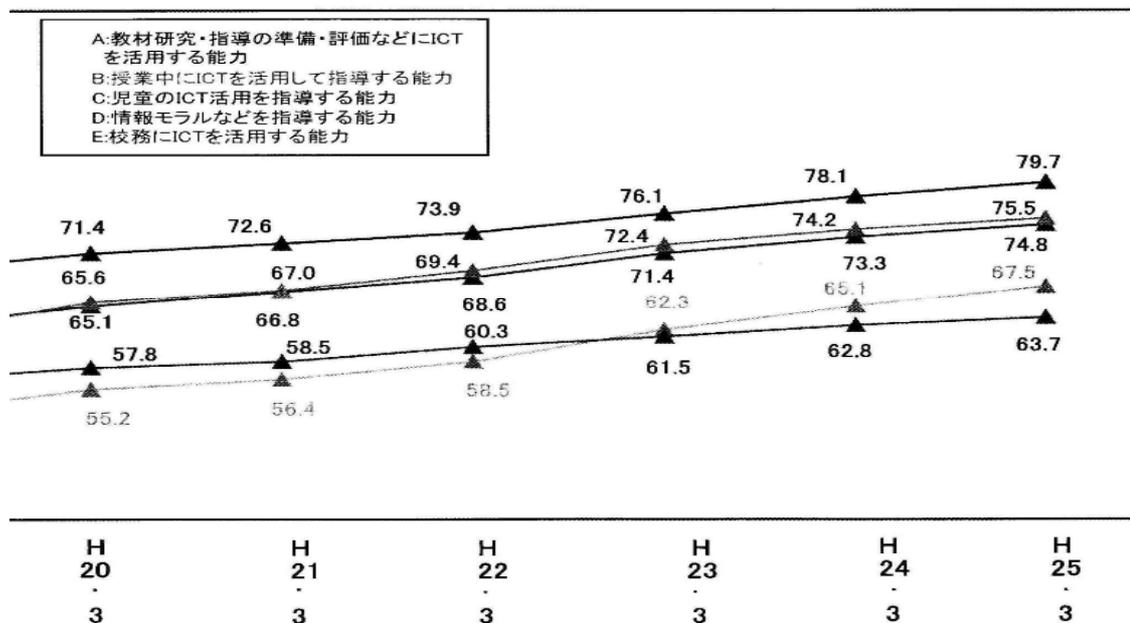
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文部科学省 http://www.mext.go.jp/　2013.08.15

Appendix 1

Appendix 2

教員のＩＣＴ活用指導力のチェックリスト（中学校・高等学校版）

　ＩＣＴ環境が整備されていることを前提として、以下のA-1からE-2の１８項目について右欄の４段階でチェックしてください。

	4 わりにできる	3 ややできる	2 あまりできない	1 ほとんどできない

A 教材研究・指導の準備・評価などに ICT を活用する能力

A-1 教育効果をあげるには、どの場面にどのようにしてコンピュータやインターネットなどを利用すればよいかを計画する。	4	3	2	1
A-2 授業で使う教材や資料などを集めるために、インターネットや CD-ROM などを活用する。	4	3	2	1
A-3 授業に必要なプリントや提示資料を作成するために、ワープロソフトやプレゼンテーションソフトなどを活用する。	4	3	2	1
A-4 評価を充実させるために、コンピュータやデジタルカメラなどを活用して生徒の作品・学習状況・成績などを管理し集計する。	4	3	2	1

B 授業中に ICT を活用して指導する能力

B-1 学習に対する生徒の興味・関心を高めるために、コンピュータや提示装置などを活用して資料などを効果的に提示する。	4	3	2	1
B-2 生徒一人一人に課題意識をもたせるために、コンピュータや提示装置などを活用して資料などを効果的に提示する。	4	3	2	1
B-3 わかりやすく説明したり、生徒の思考や理解を深めたりするために、コンピュータや提示装置などを活用して資料などを効果的に提示する。	4	3	2	1
B-4 学習内容をまとめる際に生徒の知識の定着を図るために、コンピュータや提示装置などを活用して資料などをわかりやすく提示する。	4	3	2	1

C 生徒の ICT 活用を指導する能力

C-1 生徒がコンピュータやインターネットなどを活用して、情報を収集したり選択したりできるように指導する。	4	3	2	1
C-2 生徒が自分の考えをワープロソフトで文章にまとめたり、調べた結果を表計算ソフトで表やグラフなどにまとめたりすることを指導する。	4	3	2	1
C-3 生徒がコンピュータやプレゼンテーションソフトなどを活用して、わかりやすく説明したり効果的に表現したりできるように指導する。	4	3	2	1
C-4 生徒が学習用ソフトやインターネットなどを活用して、繰り返し学習したり練習したりして、知識の定着や技能の習熟を図れるように指導する。	4	3	2	1

D 情報モラルなどを指導する能力

D-1 生徒が情報社会への参画にあたって責任ある態度と義務を果たし、情報に関する自分や他者の権利を理解し尊重できるように指導する。	4	3	2	1
D-2 生徒が情報の保護や取り扱いに関する基本的なルールや法律の内容を理解し、反社会的な行為や違法な行為などに対して適切に判断し行動できるように指導する。	4	3	2	1
D-3 生徒がインターネットなどを利用する際に、情報の信頼性やネット犯罪の危険性などを理解し、情報を正しく安全に活用できるように指導する。	4	3	2	1
D-4 生徒が情報セキュリティに関する基本的な知識を身に付け、コンピュータやインターネットを安全に使えるように指導する。	4	3	2	1

E 校務に ICT を活用する能力

E-1 校務分掌や学級経営に必要な情報をインターネットなどで集めて、ワープロソフトや表計算ソフトなどを活用して文書や資料などを作成する。	4	3	2	1
E-2 教員間、保護者・地域の連携協力を密にするため、インターネットや校内ネットワークなどを活用して、必要な情報の交換・共有化を図る。	4	3	2	1

※ＩＣＴ：Information and Communication Technology の略語。コンピュータやインターネットなどの情報コミュニケーション技術のこと。