Are we ready for cellphones in the classroom?

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1. Introduction

This paper describes an on-going action research project that began with an assessment of how 976 Japanese university health science majors employ mobile devices and their attitudes about possible educational applications. As the results showed generally favorable attitudes about this technology, a mobile-friendly BBS was introduced along with links to iMode sites suited to student needs and tastes. Use of these tools and their reception by students are reported.

The initial impetus for the project came by observing that practically all university freshmen in Japan possess mobiles, use them enthusiastically for texting and conversing, manipulate them with ease, and seem to feel more comfortable with them than with computers. In addition, students do not feel intimidated by the somewhat complex and cumbersome method of text input, which necessitates user manuals of mammoth proportions (e.g., 491 pages for the popular N503i model; NTT DoCoMo, 2001). In comparison to the apathetic and slow acquisition of computer literacy among Japanese students and public at large (Dias, 2000, pp. 52-53), the uptake of mobile technology—particularly cellphones and PHSs—has been spectacularly rapid and widespread.

2. Early days

In Spring 1999, when the author began examining the possibility of exploiting students' mobile technology in classes (the same year that iMode was introduced in Japan and became an immediate hit), researchers involved in such projects were few and isolated. To determine whether language teachers appreciate the potential of cellphones as tools for *communication* and were using them productively, the author sent inquiries to three mailing lists for language educators: Neteach, Foreign Language Teaching, and the Language Learning Technology International Discussion List (LLTI). The requests asked participants to share their experiences of educational uses of cellphones in the classroom. Although total membership of these lists exceeded 2,000, only four replies arrived, the two most helpful being from acquaintances in Japan who had created iMode sites, in one case to showcase fine *haiku* and introduce himself on a cellphone equivalent to a homepage (McCarty, 2000) and, in another, to provide an online glossary of basic English words (Kelly, 2000).

3. Changing mobile landscape

As wireless web content improved in quality, and the user-base increased exponentially (with approx. 50 million wireless Internet users in Japan—more than in the rest of the world together, 32 million of them i-mode users [Eurotechnology-Japan (a), 2002]), educational applications for the technology became more difficult to ignore and blanket prohibitions in schools began to be lifted (Kinsey, 2002). Media studies and sociological inquiry into mobile communications began to lay important foundations for pedagogical applications. Ling (2000), for example, discusses *motifs* of cellphone ownership ("accessibility, safety, and micro-coordination," p. 1) among a random sample of 1000 Norwegian young people. Commercial and governmental interest in the technology's pedagogical potential also surfaced. Savill-Smith et al. (2002) conducted a 3-year pan-European project funded by the European Commission to survey mobile usage habits of European youths with the goal of developing learning modules for school leavers lacking basic literacy and numeracy skills. Other mobile web learning projects are underway in the U.S., Sweden, Singapore, Chile, and Norway (Kluge et. al., 2002).

## 4. Initial class-related uses of cellphones

A teacher's first and simplest use of cellphones for class-related purposes might be to organize a mailing list allowing distribution of assignments, reminders, or announcements directly to students' phones. Until most students acquired handsets with web access, the author avoided more complicated uses of the technology. However, after over a year of using students' mobile phones as reception devices for short, class-related communications, student response had become positive enough, and the technology had progressed sufficiently, to introduce a wider variety of tasks. Before beginning this potentially time-consuming undertaking, it was necessary to seek answers to basic questions about usage habits and attitudes. How many students had web capable handsets? Would they be willing to pay higher access charges to use their phones for class-related purposes or did they see them as part of an inviolate personal space? (Charges for packets of information received via the web would be considerably more expensive than an occasional email announcement [Eurotechnology-Japan (b), 2002].) A survey was conducted to answer these questions.

5. Mobile phone usage among university students in Japan

976 university freshmen were surveyed, majoring in various health sciences and literature at two universities, Kitasato and Aoyama Gakuin. A follow-up survey was given in January 2002 to a subset of those students—ones who had the option of using their mobile phones for language learning activities. Results from both surveys are summarized and discussed below.

5.1 Patterns of usage

Figure 1. Cellphone ownership
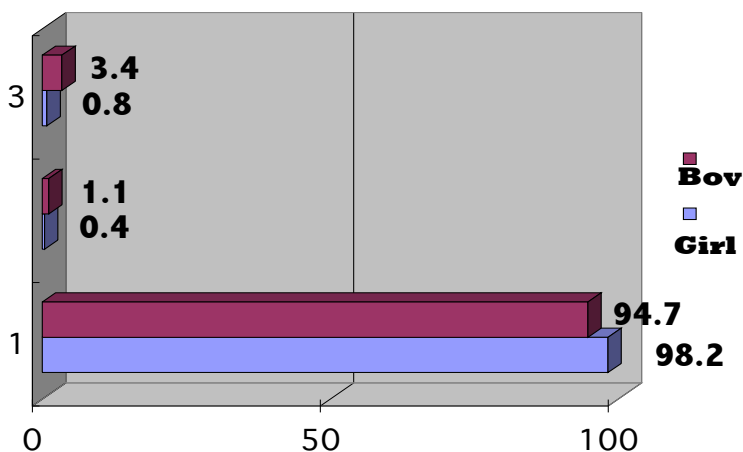
Cellphone ownership was practically universal but it was necessary to make alternate activities that could be done on a computer or via other means for the few who had abandoned or never owned a handset. It was necessary to respect what was likely a very difficult decision for this minority in going against the wireless tide.

Figure 2. Years of cellphone use
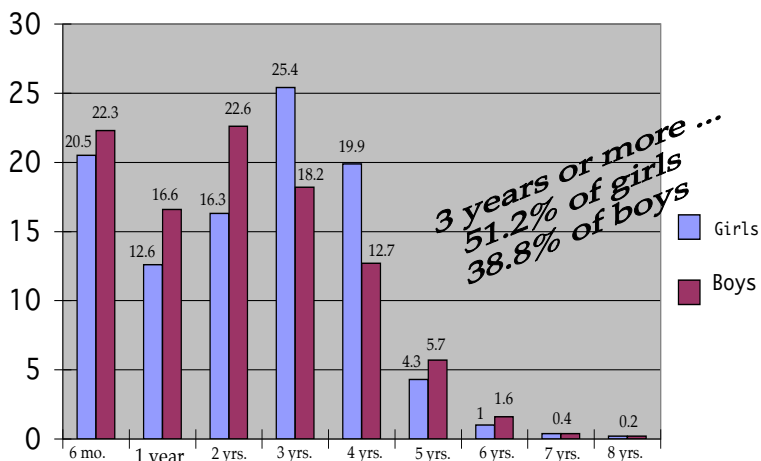
A slim majority of female students and a large minority of the males had already been using a cellphone (CP) throughout their high school years. Approximately one fifth had been using one only since entrance to university. Therefore, it could not be assumed that all students would be equally proficient with texting or would have a detailed understanding of bookmark management, the conventions of email, etc.

5.2 Affective factors

Every type of learning/communication technology comes with affective factors that can work with or against the learning process (Lieberman, 1998). Depending on whether students acquired mobile phones for positive or negative reasons, they might be more or less inclined to use them for educational ends. Unsurprisingly, many students followed the lead of their friends in acquiring a CP (see Fig. 3). Relatively dramatic male/female differences appeared in items 1 and 4, with more than twice as many female students getting CPs for personal safety and to use email without a computer. The fact that such a large percentage of students selected *other* might be explained by the omission of the option "To arrange romantic liaisons without the knowledge of parents."

Figure 3. Why did you decide to get a cellphone?
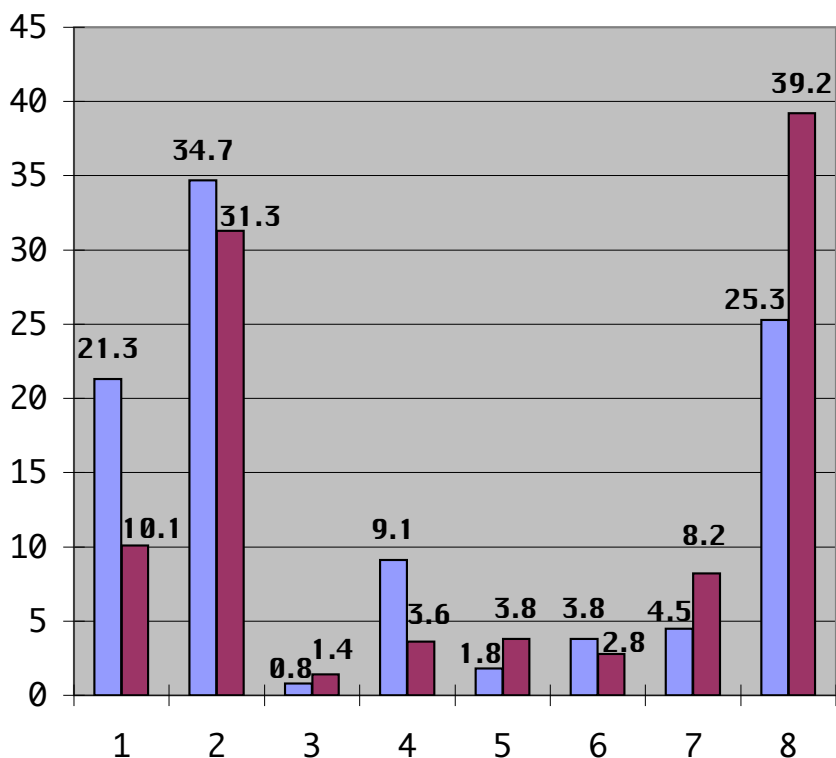
1) Parent recommended it for personal safety.

2) Most of my friends had them.

3) To make new friends.

4) I wanted to use email without a computer.

5) I thought it would be cool to have one.

6) I was afraid of being separated from my friends in a crowded place.

7) I didn't want to be behind the times.

8) Other

[Respondents were free to select as many items that were applicable.]

5.3 Practical considerations

Besides affective factors that might influence students' orientation toward the use of CPs for class-related purposes, practical considerations were also investigated. Knowledge of pre-existing problems would allow work-arounds and prevent confusion with complications arising from the introduced activities. It was feared that some problems might be exacerbated by additional usage. Curiously, poor reception turned out to be a greater concern for female students and, contrary to expectations, the inconvenience of text input was cited as a problem by only a small minority.

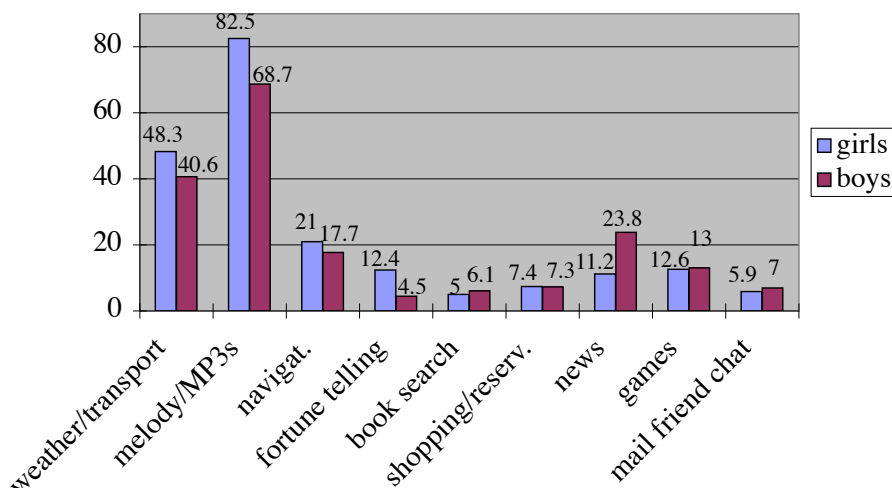### Figure 4. What problems have you had with your cellphone?
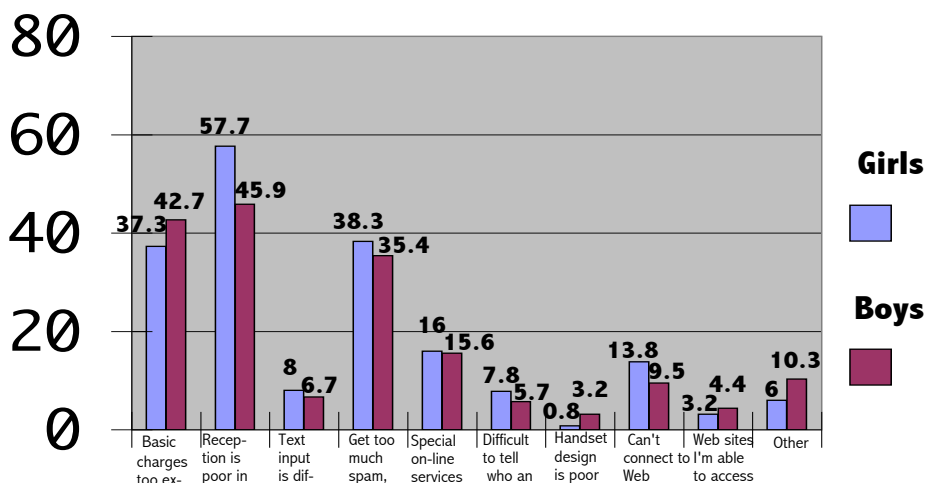
5.4 Email and web access through cellphones

A further research question was whether (or if) the widespread adoption of CPs featuring email and web functions might have hastened the initial use of these functions. 68.9% of the male and 62.9% of the female students first began using email in high school and only a small proportion had not yet had exposure to email at the time of the survey. This was in drastic contrast to the results of a 1999 survey conducted with a comparable population, which found that more than a quarter of freshmen at a university specializing in health sciences had no experience with email even by the *end* of the academic year (Dias, 2000). So, cellphones are bringing email to students much earlier than previously. As the next figure shows, that initial exposure is most likely to be via a CP.

Figure 5. First experience with email

Don't use
email

PDA w/modem

From a
computer

2.8

1.1

26.3

69.7

From a cell phone
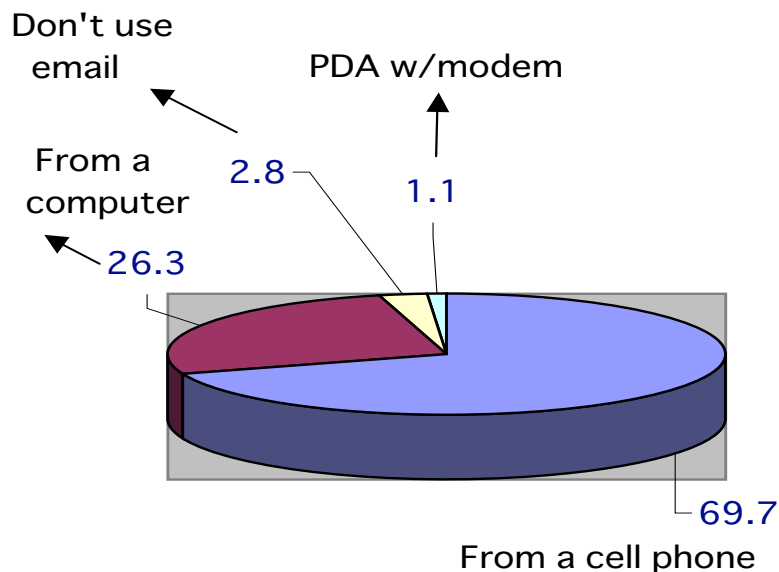
It was also revealed that 73% of students could access the web on their CPs and, as unpleasant as this access method can be, for the majority, this was the primary way.

Figure 6: The relative popularity of various sorts of web content

Bar chart legend: girls, boys

category	girls	boys
weather/transport	48.3	40.6
melody/MP3s	82.5	68.7
navigat.	21	17.7
fortune telling	12.4	4.5
book search	5	6.1
shopping/reserv.	7.4	7.3
news	11.2	23.8
games	12.6	13
mail friend chat	5.9	7

5.5 Willingness to use mobile phones for class-related purposes

When asked whether they would be willing to use their mobiles to study/practice English if they knew a way to do so, female students were 13.2% more likely than males to agree to "if required to do so" or "on a voluntary basis" (see Fig. 7). The fact that a fifth of female students

and nearly 35% of males expressed no interest made it clear that alternative activities, possibly using computers or through other means, needed to be offered to this sizable minority so as not to alienate them.

Figure 7. If you knew a way to study/practice English using your cellphone, would you do it?
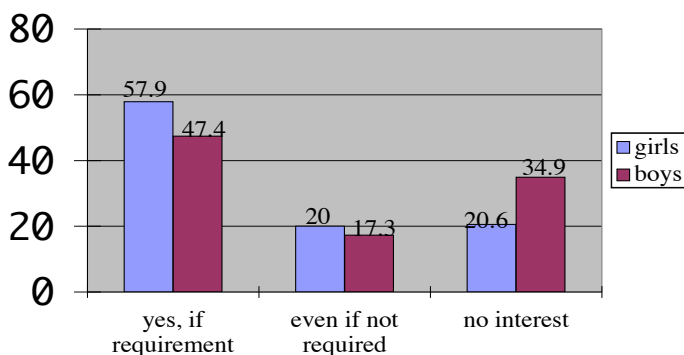
Equipped with the information gleaned from these survey items, it was possible to set up a BBS accessible from practically all CP types used by the students (Fig. 8) and create a page of cellphone-friendly links to language learning and English content sites (Dias, 2002).

Figure 8

5.6 The mobile-friendly BBS

Some commercial BBS hosting services which allow access via a computer's web browser and a variety of CP types are now available at reasonable rates. Therefore, it is not necessary for teachers to invest time and effort writing the complicated CGIs necessary to make a multi-platform BBS. The service used for the BBS described here—currently available only to users in Japan—was hosted by TeaCup Communication (www.teacup.com/index.html). The BBS shared by students in eight classes can be accessed at 8259.teacup.com/jodias/bbs.

6. Student reaction to the BBS

In the first four months of its existence, the BBS attracted 1475 hits. A quarter of the total messages were posted by the teacher in an effort to stimulate participation. 32.9% of the messages were sent by only five students, with one particularly enthusiastic male medical technology major accounting for 14.3% of that total. Curiously, messages posted from CPs came to only 11.4% of the total even though a follow-up survey showed that more than 70% of students accessed it primarily from their CP. So, it seems that the preferred method for *reading* messages was via the CP, but, for *writing* messages, a computer was favored. The relative popularity of various methods for accessing the BBS can be seen in figure 9.

Figure 9
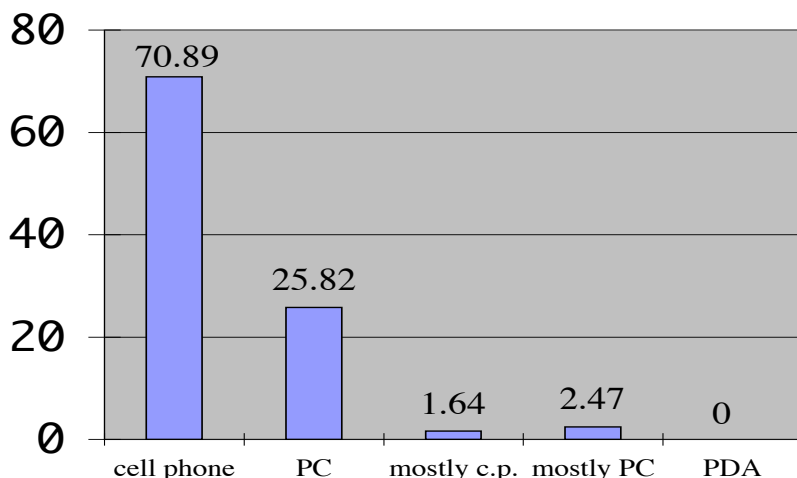
7. An alternate channel

The BBS offered a channel for communication about some topics and issues not normally addressed during class and, as students accessed it even during the vacation, continuity could be preserved and down-time reduced. The roles played by both students and teachers, as evidenced by the sorts of topics considered *mentionable* by participants, were seen to expand in ways previously described by Dias (1998) in computer email exchange projects. Communication topics/functions taken from the BBS are listed below and examples are given for each category.

Teacher's side

Give reassurance

- "Don't panic—there's still plenty of time to complete summer homework."

- "Getting tired of school life is natural at this time of the year."

Congratulate Ss on their successes

- "It's great that you passed the 2nd level of the Eiken."

Clarify homework and assignments

- "You should find a cultural event happening in your area, participate in it, and report on it in English."

Report on travels

- "I'm now in The Hague listening to a rock concert and…"

Ask students for information

- "Do you know how I can get tickets for the Papaya Suzuki concert?"

Students' side

Respond to teacher's inquiries

- "I have an AU phone and, as you can see, I can access the BBS."

- "I refresh myself by singing."

Tell of successes

- "I passed the 2nd level of Eiken."

Inform others of cultural events related to English

- "I am going to go to Yokohama Sogou Museum to appreciate work by the picture book writer Tasha Tutor."

Ask for clarification of homework/projects

- "Please tell me the way to submit the report."

Correcting teacher

- "By the way, Mr Dias, Yokohama Sogou Museum is near Yokohama station—not Sakuragichou Station."

Promote hometown

- "My hometown is Kobe. I think Kobe is itself a museum."

Complain about part-time job

- "I have a part-time job at an Italian restaurant. It is very very hot in the work space!! Sometimes, it is 40 degrees."

Call for companionship

- "I'm in A3 computer room. There aren't any students in this room—the same as yesterday…"

Discuss current events

- "I went to Kabuki-cho in Shinjuku. Forty-four people were burned to death by the fire last week."

Express panic

- Summer vacation is coming to a close and I didn't finish my homework yet."

8. Links to mobile-friendly sites

Good content for CPs has been slow in coming and has lagged far behind that available for such handheld—and increasingly wireless—devices as those running Palm OS. With new generations of CPs increasingly resembling PDAs, and incorporating their features and memory capacity, the content gap will narrow quickly. Sites that automatically switch content format for computer, CP, or palmtop are likewise increasing. In addition to the CP mailing list and BBS, the author mined the web and iMode space for sites of potential use for language learners. Most fall under the categories of news, communication (e.g., BBSs and penpal exchanges), reference, search engines, English study, and those that promote entertainment and cultural activities.

In a follow-up survey administered at the end of the academic year, 204 students were queried about the sites they found most useful. In order of preference, the top six sites female students favored were: Yahoo News, English Jokes (featuring translations and explanations of English jokes in Japanese), Online Vocabulary, TOEIC Vocabulary, Google (a search engine that converts normal webpages so that they can be viewed on the CP in a limited way), and Build Vocabulary.

Male students favored (also in order of preference): TOEIC Vocabulary, English Jokes, English Haiku & Google (equally popular), Yahoo News, and Build Vocabulary. One curious point was that female students were nearly twice as likely to access Yahoo News. Male students favored Haiku more than their female counterparts and some vocabulary sites were more popular with female students and others with males. This warrants further investigation but is beyond the scope of this report.

9. Concluding remarks

As the activities introduced for cellphones were voluntary, the author was not discouraged by the fact that under 18% of students did not access even one of the sites with CP-friendly content. It was, however, rather surprising that, by the end of term, a similar proportion of students claimed never to have heard of the CP BBS. This either indicates that the teacher did insufficient promotion of the BBS, or it represents the human tendency to filter out anything outside the sphere of interest. Since the use of CPs was voluntary, the author considers the trial a success and plans to continue offering these optional resources to students as an additional source of English input and channel of communication.

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