The Impact of the iPad and iPhone on Education

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Abstract

   This paper examines Apple's popular iOS devices: the iPhone, iPod Touch and the iPad. It will investigate their potential to revolutionize education and the role to be played by students, teachers, educational institutions and publishers in the development of new environments, methods and materials for learning. As teachers, educational materials producers and publishers, the authors of this paper seek to discover whether the goals for the use of this new technology are practical, realistic, educationally desirable and commercially sensible.

Introduction

   The authors have been involved in Computer Assisted Language Learning (CALL) research and materials development for the past decade. During that time, they have developed and evaluated a series of CALL integrated textbooks, which include interactive DVDs, online study support centres and online testing facilities. The authors have been watching with interest the development and growing popularity of the Apple iPhone and subsequently the recent introduction of the Apple iPad. This paper addresses the authors' research into the following questions: 1) What percentage of students currently own an iPhone or iPod Touch and to what extent these devices are currently being used by students for educational purposes? 2) How is the iPad different and/or better than the iPhone or iPod Touch in its usability for educational purposes? 3) What impact will the iPad have on the development of language learning and other educational materials? 4) What impact will this have on students, publishers, universities, teachers and their concepts of education?

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The iPhone and iPhone Apps

One of the first educational materials publishing companies to enter into the iPhone App market was Pearson/Longman. To-date, this company has made a series of their dictionaries available as iApps. The authors believe that the first to become available was the *Longman Dictionary of Contemporary English*. Interestingly, this iApp was created by a company here in Tokyo. This application became incredibly successful and started a race amongst other companies to catch up. The Pearson/Longman dictionary has now sold an incredible number of downloads worldwide. Selling in Japan, the price to download the application is 3,500 yen. Whereas, the cost of the original book (paperback version) dictionary is 4,200 yen. When comparing the two formats, it is very simple to see several benefits for students to buy the application version. Not only is the iPhone version cheaper, it is also much more convenient to carry around than a large and heavy hard cover version. In addition, the downloadable version is much more flexible and includes an interesting array of capabilities that are simply not possible in a book version.

These features include:

- Full content of the print dictionary Plus additional collocations and synonyms
- Complete front matter and additional resources
- Unique three-way cross-referencing search
- Real-time progressing look-up
- New idiom and phrasal verb indexes
- Wildcard searches for unknown spellings and quizzes
- Hyperlinking internally to look-up meanings and opening appendices
- Support for search from other applications
- Bookmarks with editable notations
- Automatic history
- Complete offline use except for example sentence sounds
- 77,000 recorded sound files in both UK and US English
- Integrated thesaurus

Other major English language education publishing companies, for example, Oxford University Press, have rushed to make their own dictionaries available for the iPhone.

It is reasonable to assume from the success of the dictionary applications already available that many other language learning applications and resources will follow in the near future. To date, however, relatively speaking, there has not been an enormous flood of wide-ranging language-learning applica-

tions becoming available for the iPhone via the iTunes store.

As mentioned above, downloaded dictionary applications have been very successful. The other most common kind of language-learning applications are translation applications. These are also wonderful tools, which allow learners to type a word or phrase into the iPhone in one language and then have it translated into almost any other of the main world languages. In addition to the usefulness and enjoyment derived from using such tools, many of them are actually free downloads.

However, at this time, there is still an overall shortage of other kinds of language-learning applications available. For example, there are currently only a few applications, which are designed as listening and speaking courses similar to a classroom textbook. One example of this kind of application is Conversation English by The English App. In addition, when we consider the developments made in Computer Assisted Language Learning (CALL) materials and activities, these iPhone applications are comparatively basic and uninspiring.

One example of the limitations of this iApp is that it does not use video. The conversations are presented only in audio format, and in addition, unlike with DVD technology, there is no navigation available on the audio. This means that students can only play the audio and listen to the whole conversation each time. They are not able to move forwards or backwards through the conversation. The text-based exercises are relatively simple and not particularly interactive for a machine with such capabilities. There are two very simple multiple-choice exercises, which simply show a 'correct' or 'wrong' response for each completed answer. There is a very simple text matching exercise. It is quite disappointing, but at this moment in time, this seems to be the limit of any of the similar iPhone Apps available.

There are several reasons for this situation. Firstly, to create interesting and interactive applications of this sort requires the author/publisher to either have or to create a wealth of suitable digital material, for example, audio and video footage, interactive quizzes and games or online study activities. For example, The English Course series of titles each include many short video clips. Each clip requires a minimum of 50 hours of post-production work to complete, involving as many as 20 different production steps to achieve the required result. Of course, most language courses and textbooks on the market today are in paper form and have very little of such materials available, presumably because the publishers do not wish to take on the time and expense of creating the material. It will require a great investment of both time and energy in order to create such materials to be able to move from a publication of a traditional textbook to an iPhone application. Another problem to be faced in creating more complicated applications is dealing with the additional memory and the quantity of data required. However, the biggest problem facing would-be application creators is the difficulty and cost of the programming necessary to create an iPhone application. Applications for the iPhone are programmed in a language called Objective-C, which requires considerable time and practice to master and use. Each new iApp requires the creation of some kind of software engine to execute the code. The engine is used to respond to the

user's choice of actions and present data accordingly. With a dictionary, the engine is relatively simple. For example, the user enters the text of a word that he/she wants to look up and the engine retrieves and displays a definition. With a game, the software engine is a lot more complicated because the range of potential user actions are much more varied and the possible responses are more varied, too. Even experienced programmers need to take on a huge learning curve to be able to deal with this kind of programming. Apart from dealing with the programming themselves, the only other option available to the publisher, is to pay very large fees to specialist application engineers. In the last twelve months, fees of around 200 dollars per hour were reportedly being charged in the U.S. However, in recent months (mid 2010), prices internationally seem to have stabilised around 20-25 dollars per hour.

The reason that dictionary and translation type applications are popular with publishers is because they can be made with relatively simple engineering. This is because such applications can work using basic data retrieval. The engine is only required to display a text definition and possibly an audio clip to demonstrate the pronunciation.

However, to create more interactive and complex applications, for example to allow showing video with subtitles, or to have quizzes with instant feedback, requires much more complicated programming to create the individual engines required to control such activities. This requires a much greater investment of time, money, or both.

Having already published three CALL integrated textbooks which include a wealth of digital material, the authors are currently working on the programming necessary to create listening and speaking applications that are more advanced and interactive than anything currently available. These applications will come in modules that the learner can download as and when needed.

The outline of each nine-part module will be as follows:

1) a video-based dialogue with subtitles;

2) listening comprehension questions with automated feedback;

3) pronunciation drills;

4) a language focus section that examines the grammar or language structures specific to the topical focus of the module;

5) a lexical or content material section specific to the topical focus of the module;

6) an audio dialogue with a task such as content sequencing;

7) an audio-based exercise that tests the student's knowledge of appropriate responses to the topical focus;

8) a text-based exercise testing appropriate responses and/or grammatical accuracy;

9) a concluding audio exercise or test.

From iPhone to iPad

Before discussing the capabilities and merits of the iPad, it is important to know exactly what the iPad is.

First released in April 2010, the iPad is a tablet computer which uses a touch-sensitive screen, allowing users to control the device with their finger(s). The iPad has a 9.7 inch (diagonal) screen that displays 1024-by-768-pixel resolution at 132 pixels per inch. The data capacity is 16GB, 32GB or 64GB. The iPad's battery life is up to 10 hours. The iPad comes in two main versions: a Wi-Fi (802.11a/b/g/n) only model and; a Wi-Fi plus 3G (mobile phone connection) model. The iPad is the newest member of the iOS family of devices that also includes the iPod Touch and iPhone. One of the most important developments that accompanied the release of the iPhone was the concept of iApps and the App Store. iApps are software programmes designed to run on the iPhone, the iPod Touch, and now the iPad. iApps are downloaded from the online App Store. iApps can either be bought or are free. There are currently over 250,000 iApps for the iPhone and iPod Touch and, as a result of this huge number of products, there are iApps for every category of use. There are a further 25,000 iApps for the iPad. These iApps have proved to be very popular and as of 1 September 2010, iApps have been downloaded 6.5 billion times.

The iPad and iPad Apps

There is no question that the iPhone has had and will continue to have an impact on the learning and teaching of English as a foreign language. However, the authors firmly believe that it is the iPad, and similar machines that will follow, which will truly change and revolutionize the world of language learning and teaching in the coming years.

There are two very strong reasons to support this opinion. Firstly, the size of the iPad itself is very relevant. Even though it is light and convenient to carry around, the screen size of the iPad in comparison to the iPhone makes it much more convenient. The iPad is a much more suitable device for displaying digital versions of traditional types of media, such as books and magazines, than the iPhone. It is also a perfect size for displaying video clips.

The second and more important reason is that the process for creating digital versions of books and magazines is much simpler than that required to produce iApps (either for iPhone or iPad).

One of the leading software companies, Adobe, produces InDesign, one of the leading software programmes for the creation of traditional print media, such as books and magazines. Now Adobe has added the ability to create digital versions of publications, using the EPUB standard. The iPad and other tablet computers use the EPUB standard to display digital versions of books and magazines. These digi-

tal versions offer much more interesting functions than traditional print-based media. With digital versions, users are no longer confined to looking at static text and images. Dynamic elements such as slide shows, video clips, hotspots, pop-ups, and web links can be included in the publication. This development offers wonderful potential for people with imagination and creativity in any field to create all manner of new and exciting digital publications. In an educational context, the opportunity exists to completely transform textbooks into dynamic and interactive publications that will be much more interesting for students to use.

Apple's introduction of the iPad, along with the introduction of the above software will have a major impact on the amount, range and quality of language learning materials. The authors are currently working on the adaptation of the aforementioned iPhone module into a format suitable for the iPad. The potential to create interesting interactive materials is extremely exciting. It is likely that many other teachers, particularly those with CALL backgrounds and interests, will be utilizing this opportunity to create innovative and exciting digital publications and applications for learning English.

If one considers this potential trend carefully, there is a further and more important conclusion to be reached. This is, that if individual teachers and small groups of enthusiasts begin to create such language-learning tools, then it is clear that the big publishing companies will have to follow suit, in order to compete. Herein lies the basis for the radical changes that the authors suggest will soon follow not only in language learning, but possible in all areas of education.

The large publishing companies must not only compete, but also, to some degree, control the direction of what is happening in the world of language-learning materials. Learning English is a multi-million dollar global industry. There are big prizes at stake and fortunes to be made in the development of new methods and materials.

Therefore, the authors feel that such companies will not only be engaged in the development of competitive new courses and materials for the iPad, but will also be seriously looking into changing, upgrading, or adapting their existing materials for use on the iPad. As with the example of the Pearson/ Longman dictionary for the iPhone, publishers will be competing with each other to be the first to convert their textbooks into digital format for the iPad.

The economic potential of breaking into this new market is a huge draw for all publishers. It should also be realized that selling a dictionary or language course in a digital version for the iPad is much more attractive and economical for publishers than selling traditional printed materials. There are several reasons for this. Moving to digital publishing shortens and simplifies the development process, as there is no longer a need to ensure that what finally appears in print matches what was designed on the computer. Furthermore, economies can be made as there is no longer a need to print a large number of copies of a title or to transport and store the publications. Even the tax liability on assets (in the form of books) held by the publishing company can be reduced. Moreover, selling digital publications allows publishers

to bypass distributors and book retailers, who often act as an impediment between the publisher and the reader. Finally, producing digital versions allows for the publication of titles that would not have been economically viable if published in the traditional way and no book need ever go 'out of print' again when it is available in a digital version. A recent article in *Newsweek* magazine showed that, at the present time, on average, approximately 10% of publishing company's income is being generated by digital income. It will be of great interest to monitor these statistics carefully over the coming years to see how quickly and to what degree this figure increases.

Ironically, *Newsweek* magazine itself, which is owned by The Washington Post Company, has been losing money for several years now. There is discussion of the magazine being sold off with a view to become a tablet-only publication, designed for read reading on the iPad. In fact, there is even speculation that Apple might buy the magazine and promote it through the iTunes store.[1]

The iPad in Education

This understanding of the potential impact of the iPad on publishing, has lead the authors to research what is already being done on the iPad in education now, what may or will be done in the near future, and more importantly, the effect or impact that this will have on individual language teachers and also institutions.

It is not difficult to imagine how the iPad could revolutionise the classroom. The iPad (along with Wi-Fi equipped buildings) will facilitate the following six main developments:

1. Audio and video material will be controlled by the student rather than by the teacher. Playing material will be an individual activity not a communal one. Students will be able to decide how long to listen to material, when to stop, when to replay, and where to focus their listening within the material.

2. Students will be able to download, upload, share or collaborate via Wi-Fi and web pages.

3. Every classroom can be a CALL or LL room. CALL and LL rooms can be liberated from the constraints of bulky furniture that have been a barrier between other students and between the students and the teacher.

4. There will be instant access to the web for research purposes and/or access to the digital collections held by an institution's library.

5. The iPad is not just a consumer device (in the sense that the user is solely a recipient of material). The user can also author his/her own material using software such as iWork, a suite of applications that includes Pages (a word processor/page layout programme), Numbers (a spreadsheet) and Keynote (a presentation tool).

6. The iPad is a presentation device and can be connected to large displays and projection systems.

It should be mentioned at this point that many of the above capabilities are of course possible by carry-

ing laptop computers into the classroom. However, the authors believe that the iPad has many advantages over PCs for use in education. These reasons include:

- Price – The cheapest version of the iPad at this time is about $400 whereas a decent quality PC would probably cost double this amount and is more prohibitive to both students and institutions.

- Size and portability – The iPad is much lighter, smaller and easier to carry than most PCs on the market.

- Ease of use – For many students (particularly children), the iPad is a much more simple and intuitive device to use. Applications are designed to be simple to use and many students who are not computer literate, but who are used to using 'smart phone' applications will find the iPad much easier to cope with.

- Software – The vast amount of applications now being developed specifically for the iPhone, iPod and iPad means there are many more choices of applications available for students to work with. These applications cannot always do the same things as versions designed for PCs, but are usually much cheaper or even free. In addition, applications are generally much simpler to use and students and teachers do not have the same learning curves to deal with as they would in learning to use many PC applications. For example, whereas, learning to record, edit and then export audio or video files can be an extremely complicated and time consuming process, incorporating several difficult and expensive applications on a PC, it can be done very quickly and easily by almost anyone using a single free application on the iPhone or iPad. The authors do not wish to say that such tasks can necessarily be done better, but rather that it will be much simpler quicker and easier to get a classroom of students to achieve such tasks on the iPad rather than on a PC.

- The touch screen – The authors believe that this is the crucial difference. Having a touch screen allows for much quicker and simpler manipulation of both materials being viewed or created. It is a quick, simpler and importantly, fun device which will encourage to use their own imagination and creativity. The hands on approach (touch) makes it a much more exciting tool to use then a standard PC.

There are already reports in the press that many universities are embracing the iPad for the classroom. In several U.S universities, students have already been issued with iPads upon entry. In Australia, the schools systems in several different parts of the country are trying to bring the iPad into their classrooms. An example of this is in Victoria State, where eight schools have been issued with 500 iPads in order to try them out and evaluate their usefulness in education. In the U.K., which was one of the first countries to really embrace the interactive whiteboard and introduce them into schools at every level, teachers are now exploring the potential of the iPad for classroom usage.

Stanford University in the United States recently issued all of its first year medical students with an iPad.

The university blog announced:

"Students will be able to easily access high-quality information at any place, at any time…and replacing printed syllabi with PDF's is in line with the Sustainable Stanford initiative, which aims to build sustainable practices into every aspect of campus life." The blog added, "The iPad allows students to view and annotate course content electronically, facilitating advance preparation as well as in-class note-taking in a highly portable, sharable and searchable format,"[2]

Students use the iPad to be able to view enlarged images of molecular structures, which are too small in textbook form. They also use it to highlight and annotate anatomic drawings as in the photograph.

The iPad helps connect the bones for medical students. @Stanford U School of Medicine.

It is not only at the college and university level that the iPad is now being used and tested in the classroom.

St Andrew's school in the U.S. is also encouraging its middle school students to use iPads in their classrooms. This is what they say on their web site:

'The Apple iPad extends our student's learning opportunities beyond the school day and is another tool for the students to use as they develop the skill sets necessary for the 21st century.'[3]

The iPad is used by our students in a variety of ways:

• Note taking and organizational tool

• Research tool

• Presentation tool

• Homework tool

• Sharing and collaboration tool

• Reading tool

• Discovery tool

It is clear that at every level of education the iPads flexibility and versatility can make it an incredibly valuable learning tool for students. Elementary schools are also experimenting with iPads in classrooms. Teachers are learning to utilize both the educational applications available as well as games that are designed for learning important skills.

Some examples of the wonderful educational material available are:

- *Star Walk*, which can be used to teach students about the solar system.
- *National Geographic's World Atlas HD*, which enables students to work with three different kinds of interactive maps of the world.
- *VideoScience*, which show children 2-3 minute clips of science experiments, and is designed to excite and bring science to life.
- Some examples of the excellent games for educational purposes available are:

  Aphabet Fun, which teaches children to read write by allowing them to trace the letters on the screen.
- *Math Magic*, which is an interactive Mathematics application.
- *Miss Spell's Class*, which is a word game that tests students spelling.
- *Read Me Stories*, which is a talking picture book that teaches children new words and concepts through digital stories.

These are just a few examples of the numerous applications available for education.[4] It is not hard to imagine the joy that children can derive from using such materials as opposed to, for example, looking at poor quality pictures of space in books or learning about science experiments on a blackboard.

Perhaps the most exiting development, which is yet to happen, but almost inevitable, is the future collaboration between Apple's iPad and the makers of interactive whiteboards. This will allow each student not only to use the iPad for research and creation, but also to be able to show all of their classmates and teachers their work easily and quickly. It will also allow all members of the class to work on joint projects via interactive whiteboards.

This is a development that the authors will be following very carefully, and also hope to be involved in the development of materials utilizing this enormous education potential.

How many people will use the iPad?

As of 1 September 2010, 120 million iOS devices have been sold worldwide and 230,000 new devices are being activated each day. In the first two months of availability (3 April – 31 May 2010), two million iPads were sold.[5] The likelihood is that iPads will be purchased initially, mainly by adults in employment rather than by students. One major reason for this is that, unlike the iPhone, the iPad is not available at a subsidised price or amortized using a two-year subscription. To get the iPad, it has to be bought outright (from 48,800 yen). This may deter many students from purchasing an iPad. There have been many claims that Apple's iOS devices are too expensive to achieve commercial success with less affluent members of societies or in less well-off countries. The iPhone 4 launched in China on 25 September 2010 with 50,000 pre-orders. So, although it is clear that rural farmers will not be buying an iPhone, the newly-affluent in cities such as Mumbai, Shanghai, Hong Kong and Beijing are potential

customers. It remains to be seen whether the iPad will achieve the iPhone's level of commercial success.

Will students get the iPad and if so, when?

To investigate how many students already have an iPhone or iPod Touch and if so, whether they purchase iApps, the authors decided to conduct a survey. The survey also investigated whether many students have plans to purchase the iPad. The questions in the survey were as follows:

iPad, iPhone and iPod Touch Survey

1. Do you have an iPhone, or iPod Touch?   YES   NO

   If you answered YES to Q1, circle the ones that you have.

   If you answered Yes to Q1, How long have you owned it?

   a) up to 3 months   b) 3 - 6 months   c) 6 - 12 months   d) 1 – 2 years

2. If you answered NO to Q1, circle TRUE next to any of the following statements that you feel are true:

   a) I do not want an iPhone or iPod Touch.   TRUE

   b) I want to have an iPhone or iPod Touch and <u>may</u> get one.   TRUE

   c) I want to have an iPhone or iPod Touch and <u>will</u> get one soon.   TRUE

3. If you answered YES to Q1, circle YES or NO for each of these statements:

   a) I have downloaded iApps (applications) for my iPhone or iPod Touch.   YES   NO

   b) I have downloaded iApps to help me with language learning.   YES   NO

   c) I have paid money for iApps.   YES   NO

4. If you answered YES to 3a, about how many applications do you have on your iPhone?

   a) 10 – 20   b) 20 – 30   c) 30 – 40   d) more than 40

5. If you answered yes to 3b, what kind of iApps did you download?

   a) dictionaries   b) translators   c) other

6. If you answered YES to 3b or 3c, how much would you pay for a language learning iApp?

   a) ¥0 (Free only)   b) Up to ¥100   c) Up to ¥300   d) Up to ¥500

   e) Up to ¥1,000   f) More than ¥1,000

iPad Questions

1. Have you looked at or read about the iPad?   YES   NO

2. Circle TRUE next to any of the following statements that are true:

   a) I do not want an iPad.   TRUE

   b) I want to have an iPad   TRUE

   c) I have an iPad   TRUE

3. Do you think the iPad could be useful for studying?　　　　　　　　　YES　　　NO

4. How would you feel about the iPad replacing textbooks for education?

  a) I hope it happens.　　　　　　　　　　　　　　　　　　　　　TRUE

  b) I'm not sure.　　　　　　　　　　　　　　　　　　　　　　　TRUE

  c) I hope it does not happen.　　　　　　　　　　　　　　　　　TRUE

  d) Some mixture of the two would be best.　　　　　　　　　　　TRUE

5. Rate the following ideas for using the iPad by importance. 1 = low importance, 10 = high importance.

  a) Weight and bulk: Carrying one iPad maybe easier than carrying a lot of books.

  1　　　2　　　3　　　4　　　5　　　6　　　7　　　8　　　9　　　10

  b) Rich media: You can view photos, video clips, animations, etc on an iPad, which you cannot do with books.

  1　　　2　　　3　　　4　　　5　　　6　　　7　　　8　　　9　　　10

  c) Sharing: You can send and receive materials easily with teachers and other students.

  1　　　2　　　3　　　4　　　5　　　6　　　7　　　8　　　9　　　10

  d) Mobility and access: You can use an iPad in many places and buy or get access to material more easily.

  1　　　2　　　3　　　4　　　5　　　6　　　7　　　8　　　9　　　10

  e) Interesting and easy to use: Using an iPad may be more interesting or easy to use than books, pens and paper.

  1　　　2　　　3　　　4　　　5　　　6　　　7　　　8　　　9　　　10

  f) Customization: You can change the way you look at an iPad and the materials on it in ways that you cannot do with books.

  1　　　2　　　3　　　4　　　5　　　6　　　7　　　8　　　9　　　10

The survey was given to 493 students in classes at eight different universities in Japan during September and October 2010. The results were as follows:

<center>iPad, iPhone and iPod Touch Survey 2010 – Results</center>

Q1.	Do you have an iPhone, or iPod Touch?	%
a	Yes	20.9
b	No	79.1

Q1b	If you answered YES to Q1, circle the ones that you have.	%
a	iPhone	15.2

b	iPod Touch	9.1
c	Both	0
d	Unknown due to anomalies	75.8

Q1c.	If you answered Yes to Q1, How long have you owned it?	%
a	up to 3 months	33.3
b	3 - 6 months	9.1
c	6 - 12 months	42.4
d	1 – 2 years	15.2
e	Unknown due to anomalies	0

Q2.	If you answered NO to Q1, circle TRUE next to any of the following statements that you feel are true:	%
a	I do not want an iPhone or iPod Touch.	31.2
b	I want to have an iPhone or iPod Touch and may get one.	53.6
c	I want to have an iPhone or iPod Touch and will get one soon.	10.4
d	No affirmative response to any option	6.4

Q3.	If you answered YES to Q1, circle YES or NO for each of these statements:	Response	%
a	I have downloaded iApps (applications) for my iPhone or iPod Touch.	Yes	72.7
		No	27.3
b	I have downloaded iApps to help me with language learning.	Yes	42.4
		No	54.5
		Unclear	3.0
c	I have paid money for iApps.	Yes	42.4
		No	54.5
		Unclear	3.0

Q4.	If you answered YES to 3a, about how many applications do you have on your iPhone?	%
a	1 – 20	50.0

b	20 – 30	29.2
c	30 – 40	12.5
d	more than 40	8.3

Q5.	If you answered yes to 3b, what kind of iApps did you download?	%
a	Dictionaries	28.6
b	Translators	14.3
c	Other	71.4
?	Unclear or no answer	7.1

Q6.	If you answered YES to 3b or 3c, how much would you pay for a language learning iApp?	%
a	¥0 (Free only)	17.9
b	Up to ¥100	14.3
c	Up to ¥300	3.6
d	Up to ¥500	14.3
e	Up to ¥1,000	3.6
f	More than ¥1,000	0
?	Unclear or no answer	10.7

iPad Questions

Q1.	Have you looked at or read about the iPad?	%
a	Yes	60.1
b	No	38.0
?	Unclear or no answer	1.3

Q2.	Circle TRUE next to any of the following statements that are true:	%
a	I do not want an iPad.	45.6
b	I want to have an iPad.	45.6
c	I have an iPad.	1.3

?	Unclear or no answer	9.5

Q3.	Do you think the iPad could be useful for studying?	%
a	Yes	70.9
b	No	25.3
?	Unclear or no answer	4.4

Q4.	How would you feel about the iPad as a replacement for printed text-books for education?	%
a	I hope it happens.	24.7
b	I'm not sure.	15.8
c	I hope it does not happen.	13.9
d	Some mixture of the two would be best.	25.9
?	Unclear or no answer	19.6

5. Rate the following ideas for using the iPad by importance. 1 = low importance, 10 = high importance.

5a.	Weight and bulk: Carrying one iPad maybe easier than carrying a lot of books.									
Points	1	2	3	4	5	6	7	8	9	10
%	0	1.0	10.5	5.5	20.7	24.5	19.9	13.2	6.7	2.0

5b.	Rich media: You can view photos, video clips, animations, etc on an iPad, which you can-not do with books.									
Points	1	2	3	4	5	6	7	8	9	10
%	0.6	1.6	4.1	7.5	6.5	17.4	9.9	20.3	43	11.0

5c.	Sharing: You can send and receive materials easily with teachers and other students.									
Points	1	2	3	4	5	6	7	8	9	10
%	9.9	10.5	17.4	19.9	18.9	11.4	5.5	7.3	1.6	2.4

5d.	Mobility and access: You can use an iPad in many places and buy or get access to material more easily.									
Points	1	2	3	4	5	6	7	8	9	10

%	1.4	2.6	2.4	5.5	8.7	13.2	21.3	38.9	13.6	7.7

5e.	Interesting and easy to use: Using an iPad may be more interesting or easy to use than books, pens and paper.									
Points	1	2	3	4	5	6	7	8	9	10
%	1.0	2.0	11.4	20.3	21.9	15.6	11.0	7.9	5.7	3.2

5f.	Customization: You can change the way you look at an iPad and the materials on it in ways that you cannot do with books.									
Points	1	2	3	4	5	6	7	8	9	10
%	10	14.0	33.9	32.9	9.7	4.9	2.2	1.6	0.4	0.6

Conclusions

From the data, the authors have reached the following conclusions regarding the research questions outlined in the introduction:

1) What percentage of students currently own an iPhone or iPod Touch and to what extent are these machines currently being used by students for educational purposes?

The results of the survey data show that approximately 20 percent of students currently have an iPod or iPod Touch. Unfortunately, many students (75.8 percent of iPhone or iPod Touch owners) did not identify which particular device they own. A large majority of these people were recent buyers of their devices. More significantly, is the number of students who aspire to ownership of an iPhone or iPod Touch, which was 64 percent. Student ownership of the iPad was almost non-existent, however. Only 1.3 percent of students had an iPad, but 60.1 percent had looked at or read about the iPad. Moreover, 45.6 percent aspired to iPad ownership and 70.9 percent of all students surveyed responded that they thought the iPad could be a useful device to use for studying. These results bode extremely well for the future of iOS devices, including in an educational context.

Among the students who currently have an iPhone or iPod Touch, a large majority (72.7 percent) have downloaded applications for their device. A smaller, but still significant number have downloaded educational applications. These have not tended to be dictionaries, however. This may be because most students who own iOS devices responded that they are unwilling to pay much for an iApp. The limit that almost all of those students are willing to pay is 500 yen. The dictionaries available for download as iApps are priced significantly higher than this price point.

2) How is the iPad different and/or better than the iPhone or iPod Touch in its usability for educational

purposes?

The authors feel that the iPad will prove to be far more beneficial in every aspect of education. There are several reasons for this opinion. Firstly, the iPad is a much easier platform than the iPhone/iPod platform for publishers and individual teachers to create educational applications for and in a much shorter time period. The fact that creating applications is quicker and simpler clearly offers much greater scope for the development of more interesting and appropriate interactive materials. In addition, whereas the iPhone and iPod Touch can be used by individuals for study, their small size alone basically disqualifies them from being regularly used in the classroom. The size of the iPad offers teachers far greater flexibility and capability for use in the classroom, and is ideal for viewing and creating materials.

3) What impact will the iPad have on the development of language learning and other educational materials?

The authors believe that the introduction of the iPad will have an enormous impact on the development of language learning and other educational materials? The authors believe that not only will publishers be racing to upgrade all of their existing text-based products into this format, but that there will also be an explosion of new and exciting language learning materials available for the format. In addition, the relative simplicity with which applications for iPad can be created will encourage teachers themselves to create their own innovative applications.

4) What impact will this have on students, publishers, universities, teachers and their concepts of education?

It is clear from the information included in the paper, that our concepts of education in general, including language teaching and learning will be changed forever.

Students of the near future may never experience the classroom of today. They may never have to buy or carry textbooks to class. They may never study in classrooms that are not completely wireless and interactive. They will be issued with iPads as standard upon entering university and this iPad will be everything they need for study throughout their university life.

For universities to move forward, stay up to date, and compete, it will require a huge effort by teachers to change their own concepts and methods of teaching. Not all of them will be happy by these changes. However, they will have to accept the changes and most importantly, learn to use and adopt the changing technology and methodology. Those who cannot do so may become the proverbial 'dinosaurs'.

The authors feel, however, that the biggest impact and most significant implications are those facing the institutions themselves, and therefore, in conclusion this will be addressed as a final question for consideration.

What should be the role of universities in assisting the adoption of the iPad? It already seems clear that within the near future, those institutions that do not adopt tablet-based technology will be left behind. One of the principal advantages will be to make high quality in-house publishing a realistic,

affordable and useful goal. Traditional publishing with small print runs is costly and making updates requires complete reprints at considerable expense. With digital publishing there are no such economic barriers. Furthermore, there will be considerable financial savings for students if they can acquire their textbooks in a digital form rather than in the dead tree format.

Some universities (such as Stanford University, Oklahoma State University, Illinois Institute of Technology, Seton Hall University, North Carolina State University, Reed College, George Fox University, Abilene Christian University, Kobe University, Nagoya University of Commerce and Business), are already giving their students iPads for use with their studies. This can be a big selling point for the institution. Whether people like them or not Apple's products are considered to be 'cool' and therefore can confer 'cool' on the institution. Moreover, Apple products are well designed and incredibly easy to use. There are plenty of educational institutions that have room after room of aging, slow and unreliable desktop computers, which may actually deter students from computer use. It is time that these old computers are replaced by new ones that encourage learning in a new environment and a new way.

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