How the Business Professional can utilise the Latest Technologies to Learn another Language

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ABSTRACT

This paper investigates the benefits of learning another language for the Business professionals. It then explores and presents the use of the latest technologies in learning a language. These technologies include innovative apps on smartphones, liveScribe's smart pens, speech-to-text features of iPhone/iPad and the very latest in wearable computers such as Google Glass. These emerging technology products provide a wonderful opportunity for learning any language in a flexible and portable manner. So, the language learners can, very easily, have instant access to their portable tutor when and where they desire.

Recent research in the area of multimedia conducted by the author in Japan and North America has re-confirmed the importance and effectiveness of visual features in teaching and learning materials in general. Based on these findings, the authors have embarked on an investigation to determine the practical and innovative uses of the latest technologies employed in language education. Hence, the Business professionals can benefit from learning some basic understanding of the language of the country they are visiting. Finally, it has been demonstrated that the very latest technologies such as Google Glass can create an ideal environment for language learning.

Keywords: Speech-to-Text, siri, virtual reality, google glass, language education

INTRODUCTION

PROBLEM STATEMENT AND PURPOSE

It is interesting to note that according to Moore's Law, the computing power is doubling almost every two years. It should be noted that the increase rate in the computing power, is subject to an exponential growth. It means that the doubling rate is also increasing not linearly but exponentially. On the other hand, the periods of two years is decreasing, most probably, at a negatively exponential rate.

So, what all this means is that we are getting more and more powerful computers every year. It is envisaged that by the year 2020, we will have a chip which will be as powerful and capable as a human brain. It is expected that by the year 2030, a computer chip which is 1000 times as powerful and capable as a human brain will be available. It should be noted that we are not just considering the number crunching capabilities of the computers. We are, however, expecting computers which will behave in a manner very similar to the human brain.

Hence it will not be inconceivable to have machines which will think and a beehive like human beings. It will be possible to have a meaningful dialogue with the computer. This idea is not quite far-fetched. New and emerging products are becoming available which have

capabilities of creating natural interface with computers, the smart tablets and portable phones in the form of speech in several languages. For instance, this article has been written mainly by talking to a phone using the Dragon Dictation (Nuance, 2013) app which deciphers speech and then converts into text.

The author has also experimented practising other languages such as French, German and Japanese using this particular app. The capabilities of this particular app are amazing as it even has some learning abilities. For example, it learns the user's accent and also some of the frequently used words and nouns are remembered for future reference.

The following is an example of dictating a phrase in Japanese which the system has converted that to appropriate Hiragana, Katakana and Kanji.

「 こんにちは。 わたしの名前は，マリオです。あなたの名前は何ですか。 Konnichi wa. Watashi no namae wa, Mario desu. Anata no namae wa nan desuka.」

(Hello. My name is Mario. What is your name?)

Based on several years of research in the use of technology in education, the author foresees very interesting and practical learning and teaching applications for the emerging technologies. The purpose of this paper is to explore and identify possible innovative educational products and technology applications as they emerge.

LANGUAGE AND CULTURE

All languages stem from the same origin – that is the human thought. With the eye and ear of our mind we see images and hear sounds of actions and events. We can, without any conscious effort, store these thought-based clips for future reference or turn into actions. If we wish to share our thought-based information with others then we will have to carry out some form of conversion process. Unfortunately, we have not achieved that level of sophistication to convey our thoughts directly to another human being. Although symbolic representation is still a very effective way, language-based communication is perhaps the most commonly used method. For example, this paper is relying on the use of a language to share the author's ideas with others.

It should be noted that often language and culture are interrelated as one influences the other. Culture's roots are deeply established in the years of tradition and history.

In order to establish the benefits of learning another language, the relationship between language and culture should be investigated. As an example, an investigation by Nooriafshar and Vibert (2012) has utilised the data collected from eleven different case studies based on Japan. Each case study deals with issues and challenges facing the western expatriates residing in Japan for the purposes of business or education. The case studies were analysed separately and then the commonalities in issues were identified.

Although Japan is regarded as one of the main democracies of the world, one must remember that it is a society in which people are ranked according to their social status or position at work. Hence, a totally different kind of relationships between people should be expected. As pointed out by Hofsted (1980). the fact that not all individuals in societies are equal expresses the attitude of the culture towards these inequalities amongst us. Hofsted (1993) also suggests that Japan is a hierarchical society. The hierarchical feature of the Japanese society does not imply inequity. Japan is a free country with its strong beliefs in their traditions and religions of mainly Buddhism and Shintoism. With regard to their traditional beliefs, one may refer to the Bushido concept which contains egalitarian principles that have allowed wealth to trickle

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down to the vast majority in Japanese society (Fujimura, 2011). The traditional religions have also had similar effects on the Japanese attitude in terms of equity and equality of human beings in their society. According to Taka et al (1994). "In the case of Buddhism, every living creature is said to have an equal Buddha- hood, a Buddhahood which is very similar with the idea of numen and micro- cosm."

Respect for others, in particular, people who are older or have a higher status in the society or the organisation is definitely observed in Japan. Respecting the superiors is extremely important. For instance, the person in charge in Japan would practically decide how the subordinates should behave or even appear in their presence. Unlike the western societies, the superior can even charge the subordinates with various tasks outside the written duties of the position. One must remember that this kind of general attitude should not be perceived in a negative manner as it certainly functions well and effectively for Japan. Perhaps, some of the other societies may start learning how to re-introduce this important attitude which is unfortunately being gradually phased out. One must accept the fact that unlike Australia and Canada, Japan is not regarded as a universalist, rule based society but it is classed as a particularist society. For further reading refer to Trompenaars (1994).

Insight from the interviews suggested that a lack of knowledge of the Japanese language can create a solitary situation for the Westerner who is trying to become part of the society. A former executive of a multinational information technology put it as follows.

"Most people coming to Tokyo nowadays particularly on an expat assignment have difficulty finding the survival skills needed to really learn Japanese and I think maybe that's the most difficult thing. You get to a stage where you have little bits and pieces but you can't really have a conversation with anyone so you either kind of get siloed into the foreign community and you don't really interface with the Japanese community or some people do make a little effort but for people here on shorter term very often they live on a little microcosm of the world in Japan."

Hence, an attempt to learn the basics of the language and using it in every opportunity would allow the person to progress and ultimately hold basic conversation with the locals. This approach will contribute to creation of better links and relationships with the Japanese people socially and professionally in different countries.

Although the writing system can be quite overwhelming, specially, with its different types of Hiragana, Katakana and Kanji, the Japanese language was a spoken language long before it had any writing (Gilhooly, 2010). Hence, acquiring some basic conversational skills in Japanese should not pose a great challenge for a western person. Especially, in the case of a person from the English speaking background, the learning process in terms of speed and enjoyment should be reasonably high. Firstly, the Japanese language does not have many hard -to pronounce or very specific phonemes as in the Romance and other Indo-European languages. One can very easily imitate the basic sounds used in Japanese. Secondly, the Japanese grammar is straight forward and very logical. Unlike a Latin based language such as French, or even a Germanic language such as German, Japanese has rather a simple way of conjugation.

It should be noted that every aspect of life in Japan is different from the cultures closely associated with the English speaking societies. Fully understanding and appreciating the Japanese language and culture can be rather challenging. Accepting the differences and adapting attitudes to suit the Japanese environment are essential in overcoming the obstacles.

Different languages have different ways of expressing a thought or emotion. Often, these expressions cannot be easily translated into English. For instance, just like in Japan, the expression "Gute Malzeit" (almost equivalent to 「いただきます。Itadakimasu.」 in Japanese) said to the German hosts before eating with them would certainly signal politeness and an appreciation of the local culture. Except in certain parts of Paris where international tourists with good/some English speaking abilities roam around, initiating conversation in French would definitely establish a better rapport with the locals. One can then, if needed, switch to English. Approaching French people and having a cold start by communicating in English may not be appreciated by them. Despite the acceptance of English as a universal language, depending on the country and circumstances, the locals can be very proud of their language and culture. Some knowledge of the language can act as a key to opening the treasure chest of customs and culture and understanding them in different countries.

The development of languages and their evolution has been very much influenced by the culture, customs and the geographical location of their people. Hence, different languages have different ways of pronouncing and producing sounds. For instance the position of the tongue and the shape of the lips contribute to the basic sounds produced.   In a language, we use these basic sound units (phonemes) to build words and put these words together according to some rules specific to that language to make phrases. So, both sounding out the words and sequencing them cause the variations in different languages.   As a result of these differences, we have ended up with different ways of expressing and conveying the same thought, which is, probably created and processed in the same or very similar manner.

Although a basic knowledge of grammar is helpful in understanding and using any language more effectively, it is not essential in learning it in the natural way.   As a child, we learn our mother tongue mainly by association. In other words, we associate words and phrases with situations, sounds and visions. For instance, take the example of a child attempting to touch a hot surface and hearing a word(s) in a special tone from his/her mother. This child will always associate avoiding excessive heat or danger with the words heard. If we analyse this basic but practical example, we would realize that a language learning process is being taken place in a natural manner. Incidentally, domestic animals also learn in a similar fashion.

Use of the Latest Technologies in Language Learning

Using multimedia system, learners are able to learn a foreign word or phrase by seeing how it is written, how it sound sounds and what object or situation it refers to. For instance, if they wish to learn how to say "Where is the taxi station please" in Japanese, they can read the phrase and listen to its recording. Obviously they can repeat the phrase too if they wish. There is no doubt that this way of learning is far more effective than the old-fashioned text only approach. Research findings have shown that students prefer and benefit from visually rich methods of teaching. For details see Nooriafshar et al (2004); and Nooriafshar and Todhunter (2004).

It might have sounded far-fetched or a technological prediction if a few years ago, we had claimed that one-day we would be able to convert our language or dialect to any language or dialect via a machine.

The introductions of Apple's ios5 in 2011 and the latest hardware and software available on iPhone 4s and higher, have certainly added another dimension to learning. We can mention Apple iPhone's intelligent personal assistant Siri as a specific example of innovation which can have amazing potential uses in language education. This system has been introduced and promoted as an intelligent personal assistant which allows the user to set alarms, organize

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meetings, search the web and display the emails. Its applications can certainly go beyond those features. It can enable the user to hold an almost meaningful dialogue (not just commands) with the system. The developers are continuously enhancing the abilities and performance of the system. Hence, having conversation with an "intelligent" and knowledgeable machine is not a science fiction any longer. The system has a great potential for a variety uses including education.

The author has experimented with Siri for language learning purposes by switching the language option of Siri from English to French, German and Japanese.

After a few attempts, it was realised that the system's comprehension is improved by trying to imitate the exact pronunciation as by the native speakers of the target language. This was in fact a positive challenge. It forced the author to try and experiment with different ways of pronouncing certain words. For instance the emphases on vowels were altered. After several attempts, the system could understand many words and phrases uttered by the author. It was very encouraging to note that Siri understood and responded to questions such 「 今日の天気 はどうですか。Kyo no tenki wa do desu ka.」 (How is the weather today?) by talking back and displaying both text and charts. This kind of conversation can be a very effective way of practising conversation and pronunciation.

The advantage of all this is that the system responds to the question or statement. A relevant response by the system is, perhaps, the best instant reward which provides a satisfying sense of achievement for the learner. Hence, one can establish a limited but quite natural conversation with the system. The experiment with German was also very similar. It should be noted that the future for the educational applications of this kind of technology is certainly very promising.

Over the recent years, we have been witnessing the emergence of very interesting and clever ideas and applications for use on the smart-phones and handhold tablets. The majority of these applications, referred to as apps, are either based on previous PC-based programs or they are new applications specially developed for these handheld devices. In the case of a language education, most of these apps include an electronic phrase book, vocabulary builder and some form of a quiz or practice option. These apps are reasonably inexpensive, easy to learn and to use. They offer an ideal opportunity for learning and practising *on-the-go*.

Another very promising technology for language learning is offered by the LiveScribe's pens. These pens can record text and audio simultaneously and associate what is written by the pen with the relevant audio. The paper used for this pen appears just like a normal sheet of paper but a closer look reveals tiny dots on it. These dots are used in identifying the locations of the text/drawings. Hence, in the playback mode, the user can touch a piece of text or drawing and hear the audio associated with it. The pen can, potentially, used for various educational purposes. The author has been experimenting and using the pen for learning/improving French, German and Japanese over the past two years. The results have been very satisfying as a method of marrying traditional ways with the latest technology has been established. Using this method, the author, writes the vocabulary or phrase in the target language and then associates an audio of the correct pronunciation and the meaning (in English) with it. Descriptive images, are sometimes, include too. Hence, in the review mode, the author sees the word in the target language and listens to its pronunciation and meaning. This way of learning incorporates the visual, audio, text and kinaesthetic modes of learning. It also allows learning by association to be a part the process.

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Other technologies such as Virtual Reality (VR) will allow the learners to be a part of the learning materials and play a key role in the learning process. A virtual environment can be defined as a graphical representation of a particular context that is rich and diverse in stimuli (Garcia-Ruiz and Edwards 2008). This environment brings the sense of "being there" (Peterson 2011). Therefore, language learning in VR environment will be, in many ways, similar to a real situation with real people. This means VR enable us learning language in a natural way and even culture of the country. Participating in a local community is the most effective way for learners to gain the language spontaneously. (Shin and Yang 2008)

Let us investigate how a VR multimedia can be implemented and used in language education. The learners will be provided with VR goggles, gloves and shoes. The gloves and shoes can be in the form of micro-sensors placed in appropriate body parts for input/output and interaction purposes. After wearing and attaching the goggles and the sensors, the learners will visualise, feel and hear themselves in an actual location. For instance, they can, virtually, be at Shinjuku in Tokyo. They can physically (in a virtual manner) approach a virtual local and virtually ask by moving their hands and arms and their usual facial expression (smile, worried and desperate) 「すみません、近くのタクシー乗り場はどこですか。Sumimasen, chikaku no takushi- noriba wa doko desu ka.」 (Excuse me, where is the nearest taxi station)? The local pedestrian will smile back in recognition and encourage a foreigner trying to speak Japanese and point to the right corner. This scenario can be extended into a see, hear, touch and walk adventure too. Imagine entering a virtual shop and virtually touching and picking an object and asking「これはいくらですか。Kore wa ikura desu ka.」 (How much is this)?

It is noteworthy to mention that the technology involved and required for the VR educational multimedia approach as described above is not an impossibility in an almost near-future. Although it is not possible to set up the above-mentioned experiment right now, it is reasonable to predict superior results as several senses will be utilised. We know that for thousands of years, human beings have acquired and processed information using a number of different senses. Hence, the use of different senses for information collection, analysis and remembering is something, which our brain can relate to very well.

The future technologies will enable us to interact with computers in a less formal manner. In other words, we will not have to sit in front of a computer, switch it on and then start typing and mouse-clicking. The main computer will be able to receive commands and requests remotely and produce output to various locations around us. The output will be in the form of holographic images and sound. The speech will be controlled by the user. Hence, the user can choose any language for input or output. The user will be able to interact with the output in a natural manner by touching, separating, lifting and moving parts. Hence, a true virtual reality situation will be created.

Google is about to introduce "Google Glass". This device is described as a wearable computer which, in a hands-free manner, allows the wearer to access the Internet and utilize the incorporated 720p camera. The camera, a prominent feature, can capture both still shots and video clips for storage or sharing purposes. The most important feature of Google Glass is that the user has the option of providing the commands without, practically, lifting a finger. In other words, the interface with this wearable computer is more natural and human-like. This feature can be referred to as bringing the technology closer to human senses.

Google Glass is expected to be available to purchase in 2014. Its initial anticipated price was said to be $1000-1500. According to various relevant websites and blogs, the revised prices

will substantially less than $1000. This device will certainly have a very promising potential in language learning as it can revolutionise digital education. It is expected that its uses will transcend many existing digital products used in education.

The introduction of Google Glass (Late 2014) is certainly a "giant step" towards realizing this scenario. Google Glass, to a large extent, can achieve the realisation of the above experiment. The next section discusses the main features and ways of using Google Glass.

Google Glass, in addition to being a new idea or discovery, it is also a new way of thinking. Hence, the concept is quite compatible with the quote by Szent-Gyorgyi (1962): "Discovery consists of seeing what everybody has seen and thinking what nobody has thought." The most important aspect of the Google Glass is the way it facilitates a totally hands free and more natural interaction with the technology. In terms of the technological features, it should be noted that currently most of the smartphones and tablets are in possession of them.

After testing the Beta version of Google Glass, Topolsky (2013) suggested that it is a completely new kind of computing device, designed to reduce distraction and created to enable humans to interact and communicate with the technology in a natural manner.

Google Glass is only the beginning of bringing the technology closer to the human senses. Future information technology products may also facilitate capturing, digitising, storing and transferring human thoughts as an independent medium directly to other sources. Imagine the ability of directly transferring an animation of a concept to a learner in a "thought file". After all, the language of thought is probably universal and is not based on a particular type of language. In a strictly natural way, we do not have to pronounce words in our thoughts to describe ideas. Our ideas can be "seen" in our thoughts. Perhaps these images are like Plato's Forms (*Plato's Republic*) or Aristotles' Essences (*De-Anima*). In this way, most of the language-dependent barriers will be removed and we will achieve that ultimate level of internationalised information transfer and sharing.

CONCLUSIONS AND MAIN FINDINGS

Every new language will teach us how to use different parts of our brain, which we have not explored before. Adopting well established concepts and approaches allow the learning process to become both efficient and enjoyable. Learning by association and creating opportunities to use the right brain through visually rich multimedia systems are some examples. Therefore, learning a new language can no longer be a frustrating process for the learner.

One can also move away from the sequential learning and adopt more creative methods. By adopting the latest technologies available through Apple's Siri, Dragon's speech-to-text on iPhone/iPad and Google's "Google Glass", learning a new language can be approached in a more natural manner.

Finally, as was demonstrated, speaking a local language such as Japanese (even at an elementary level) can lead to creating better opportunities for connecting with the host country' people.

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