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Editorial

Mobile learning
Donald G. Perrin

The mobile phone and tablet have taken center stage for personal communication at many levels – text, voice, images, and video. Mobile communication devices can synchronously and asynchronously connect, receive, store, display and transmit messages, conversations, news, books, music, videos, and live television. They offer a host of computer and networking capabilities for searching, processing and storage of information. Mobile software, using hyperlinks and internet, facilitate a range of apps too numerous to mention for individual and collaborative projects. Example include a GPS guidance and tracking system, a booking system, a scheduler and reminder, a graphic tablet, a video editor, a simulator, a game machine, a library, or a search engine. The mobile phone, with its associated networks, globally integrates all communications and embraces all human activities and all knowledge disciplines. It facilitates all domains of learning, research, design, development, production, marketing, implementation and evaluation. It interfaces virtual worlds with real worlds.

Today's mobile phones are more powerful, have more storage, and greater networking capabilities than personal computers offered just a few years ago. Tey are small, battery operated, provide a plethora of functions and continue to add functions according to user needs and the imagination of their inventors.

So what is next?

Like R2D2 in Star Wars, the mobile phone already has a speech to text interface and the ability for speech to speech. Ask Google a question and it replicates your question in text. It provides spoken answers for simple questions; and it always provides a list of links in traditional Google style. For now the interpreter is in the cloud, but the mobile phone processor and operating system are fully capable of speech processing. Artificial intelligence (AI) is a likely area for further development. AI will enable automation of a wide range of monitoring and management capabilities for everything from personal schedules to finances and travel. Artificial intelligence can also "talk" to other artificial intelligences to set up schedules and obtain details required for larger projects.

Robotics is an unlikely development for mobile phones because of their small size. However, the mobile phone is already well established for local or remote control of other systems. They are also being integrated with external systems such as safely systems in automobiles and medical monitoring systems such as pacemakers.

As mobile technology assumes an increasing role in daily life, security becomes a concern – security of personal and business information and security of the phone itself. A wristwatch paired with phone and other configurations are being tested as part of the search for the next logical extensions of mobile communication devices.

Many of the dreams of science fiction writers, comic books, sci-fi movies and space explorers have already been realized. What do you envision that will enable this tiny device to further improve the quality of life on this planet and beyond?

Using voice recognition software in learning Chinese pronunciation

Hebert Mushangwe
China

Abstract

This paper is based on the notion that what matters most in language learning is communication. We argue that if a learner can be understood by native speakers while at the same time understanding what the native speaker says, then we can conclude that this learner has successfully acquired the target language. We present a set of ideas based on a voice recognition exercise that was done with 20 students from different African countries who studied Chinese language for 3 months at Hebei University. The voice recognition application on Smartphones and tablets was used for pronunciation practice purposes in order to boost students' confidence in spoken Chinese. In this exercise, the phone acts as the decoding person and it represents how a native Chinese speaker will decode the learner's speech. The results showed that during the exercise, students become more and more conscious of their errors and adjust their pronunciation. Apart from that, voice recognition applications help to determine whether or not the learner's pronunciation is stable. Based on the results of the exercise, we conclude that it is possible to turn voice recognition application on Smartphones into a game that language learners can use to practice their spoken Chinese. This method is cheap and it promotes self-evaluation as well as increasing interest in learning the Chinese language.

Keywords: Voice recognition; Chinese; pronunciation practice; confidence; stability

Introduction

Voice recognition, which is also well known as speech recognition or automatic speech recognition, is now a common application on modern Smartphones and tablets which among other functions can translate human speech into written words. Google's Android and Apple's iOS are among the popular voice recognition applications. Voice recognition is defined as a process by which human sounds, words or phrases are converted into electrical signals which are then transformed into coding patterns, to which meaning has been assigned such that spoken words can be used as an input to a computer program (Rabiner and Juang, 1993). In recent years, this computer program is now available on cell phones, thus allowing people to use voice input to send messages on their phones even when they are driving. The primary purpose of voice recognition application on cell phones is for safety when sending messages while driving. However, voice recognition also makes use of cell phones more entertaining especially when it is used in such games as the Talking Tom application where one person speaks into the phone and the rabbit (Mouse) repeats the speakers' words exactly as they hear them. The voice recognition application has so many potential functions other than safety and entertainment, some of which are not yet explored. Gales and Young (2007) summarized the possible functions of voice recognition application as follows; commanding and controlling, dictation, transcription of recorded speech, searching audio documents and interactive spoken dialogues. All these functions of voice recognition can be also effectively implemented as teaching aids when teaching languages. Application of speech recognition in language learning is not new. Rolandi (2005) once said that Speech recognition can provide the means to interactively evaluate the utterances of a learner on several educational dimensions.

In this paper we attempt to demonstrate how voice recognition can be integrated into learning the Chinese language. Learning of the Chinese language is becoming popular due to China's rise into being one of the world's economic powerhouses (Abeysinghe and Lu, 2003). However, though many people are now studying Chinese, this language is considered one of the most difficult languages in the world (Shen, 1958; Rosenberg, 1979). Considering the fact that the Chinese language has so many dialects and Chinese language learners are people from different countries and also given the fact that these learners have different first languages, it is quite challenging if not impossible to achieve unified pronunciation among these language learners. In this paper we argue that what matters most in teaching the Chinese language is for the learners to be at least heard by Chinese native speakers rather than trying to make each and every student produce Chinese sounds like the teacher or native speakers of Chinese. This is not to say that listening ability is not important, neither is this a way of promoting non-standard Chinese pronunciation. In this paper we argue that language learners can use voice recognition software to determine if their pronunciation can be heard and understood by others. Once the voice recognition device is able to transcribe the correct pronunciation of the learner, it means the learner's pronunciation can be understood by others.

Literature review and brief history of voice recognition

Voice recognition technology is not a recent development; it has a long history that can be traced back into the remote past and up to the present. A lot has been written about its application to the language learning process. According to Hsin Eu and Alan Hedge (1999), speech recognition programs came into the market at the end of 1997 as a way of translating spoken speech directly into text. However, Juang and Rabiner (2004) tracks the origin of voice recognition to the invention of recording devices by Alexander Graham Bell and his cousins Chichester Bell and Charles Sumner Tainter in 1888. The history of voice recognition experiments documented by Juang and Rabiner (ibid) show that the success of modern day voice recognition is a product of researches over several years. Anusuya and Katti (2009) note that voice recognition has over 60 years of research but still needs some development especially in terms of defining various types of speech classes, speech representation, feature extraction techniques, speech classifiers, database and performance evaluation.

Though voice recognition applications need further improvements, it still has an important role in various fields in language learning. Furui (1999) classifies the role of voice recognition into dictation and human-computer dialogue systems. Ehsani and Knodt (1998) argue that though use of speech technology in computer-based systems has its own limitations, it still stimulates interactive learning. Application of speech recognition technology in language learning started in the late 1990s. Zechner, Bejar and Hemat (2007) describe how they used a speech recognition device in their 2002 experiment to assess pronunciation of non-native speakers of English. Their experiment showed that a speech recognition device could reliably capture some aspects of speaking proficiency. The above researchers acknowledge the contribution of the Multimodal Technologies Company in Pittsburgh and in particular Thomas Polzin (computer specialist) who helped them by explaining the use of speech recognition technology and for helping them with data transcription. This shows that past voice recognition technology required highly qualified computer expertise.

Apart from that, one language learning software (Babbel language learning software), which is based on a smart learning system, also introduced voice recognition software for pronunciation practice in 2009. This kind of speech pronunciation practice allows learners to have "instant evaluation of how close their pronunciation is to that of a native speaker" (O'Hear, 2010). When the learner speaks to the computer, he or she is rated ranging from 0-100, with a 50 or higher score meaning that he or she is understandable by the native speakers of the target language.

According to O'Hear (2010), this kind of practice helps students of foreign languages to have more time to practice their speaking and at the same time it boosts confidence.

All these programs are available for computers and such software is not available for free; this makes it difficult for language learners from developing countries to use them. Sangani (2013) notes that though fully developed speech recognition software was invented in 1975, it has only recently become available for personal computers. He further notes that use of voice recognition application on cell phones is a recent development; for instance, Google Voice Search started to be available on Apple mobile devices in October 2012. The past speech recognition devices were not only expensive but were often not locally available, especially in developing countries. Following the fast technological advancement, voice recognition is now a common application on cell phones and anyone is able to use them even without deep understanding of the technical know-how as it was in the past. In this paper, we will demonstrate how voice recognition software on cell phones can be integrated into learning the Chinese language. The main aim of this paper is to help Chinese language learners to be able to utilize this application which is now available on almost all Smartphones, even thought the majority of people use them only for entertainment.

This research is developed within the mother tongue influence theoretical framework. We base our argument on the notion that no learners can reach ultimate native-like pronunciation in a second language (Hyltenstam and Abrahamsson, 2000; Scovel, 1988). We agree that mother language influence hinders second language learners from achieving an ultimate native-like pronunciation (Cummins, 1984; Cook, 1991; Bada, 2001). However, the learner can achieve proficiency to a level where communication between a native speaker and the learner is possible without difficulty. Counselman (2010) argues that even though native-like pronunciation is difficult to achieve, learners can still approximate pronunciation which is as close to the native speaker as possible. Levis John and Kimberly LeVelle (2010) also observe that the main aim in teaching pronunciation is not to achieve a native-like pronunciation but to help learners achieve a comfortably intelligible pronunciation.

Learning second language requires constant practice which helps to build learner's confidence. In the classroom, pronunciation practice from the teacher is the key for guiding pronunciation practice. However, Laroy (1995) notes that correcting learners' pronunciation is one of the most frustrating aspects when teaching a foreign language and at the same time it can be counter-productive since continuous correction of learners' pronunciation might be a major cause of loss of learners' confidence. In light of the above, when learners practice pronunciation it is common for the listener (tutor) to get frustrated and ignore or not correct the learner's pronunciation errors. At the same time, the learner might get discouraged by constant corrections thus leading to loss of confidence. Therefore, we suggest the use of voice recognition software for pronunciation practice which involves a cell phone in place of human listener. The cell phone in this case substitutes for the human listener and acts as evaluator of the student's pronunciation. The cell phone does not correct the student's pronunciation; rather it transcribes what the student says.

Standard Chinese pronunciation

Standard Chinese (also called Mandarin Chinese) is based on the pronunciation of the Beijing dialect. According to Duanmu (2007), Standard Chinese is spoken by over one billion people but less than 1% of them do so without some accent and even the Beijing natives speak Standard Chinese with an accent. Considering the fact that speaking pure Standard Chinese is quite difficult even for the native speakers of Chinese, is it compulsory for foreign students studying Chinese to produce Chinese words or phrases exactly like the Chinese people themselves? If so, who are the learners to imitate? The Beijing people or the Tianjin people? The Sichuan people or the Henan people? If one imitates a Sichuan person it is likely that a Beijing person will not hear

what the person will be saying. In teaching Chinese as a foreign language, Standard Chinese pronunciation is used as the basis for teaching despite the reality that 99 % if not 100% of the learners will end up speaking Chinese with an accent.

This does not mean that teaching of Chinese is not successful; rather it is a sign that though Chinese used to be considered a difficult language, there has been a turnaround in this notion. At the moment we can say that what is difficult for the Chinese language is to achieve standard pronunciation. As we know, when two or more Chinese people from different provinces meet, their first encounter might be a problem; for instance the Henan people cannot distinguish between /l/ and /n/, while some of those from such dialects as the Sichuan dialect cannot differentiate between /s/ and /♣/, yet they are still able to interact with other Chinese people from other provinces. It is apparent that the standard pronunciation of the Chinese language in itself is a theoretical baseline which can be achieved within an acceptable range of deviation. Thus the topic for this research is; what matters is to be heard. The word "heard" in this paper means to be understood by the listener.

We argue that, what is important is for the learner to be confident and be understood by the listener, but the question is how can the learner be confident enough for him/her to be understood? Confidence is one factor which is important in language learning, without it, foreign language learners tend to produce the same word with varying tempo, varying pitch and varying tones thus in turn confusing the learner. We believe that if Chinese language learners' pronunciation is stable, even if their tone pronunciation might not be appropriate, then they will be still able to communicate with the native speakers of Chinese without any problem. Of course a first encounter with a Chinese person might be a problem, but once the speaker and listener establish the pronunciation rule operating at that given moment, there will be few communication challenges. Just as it would be when a Shandong person meets a Xi'an person, despite their differences in dialects spoken, as soon as the two understand how each of them pronounce the same sound, then they will be able to communicate and understand each other.

In order to build learners' confidence we therefore propose the use of cell phones or any other device that supports voice recognition for Chinese language purposes. Through use of voice recognition software, learners can establish whether or not their pronunciation is stable. In this paper we will demonstrate the use of voice recognition exercises where students can rehearse their speech production stability. The aim of the exercise is to establish whether the students can consistently pronounce Chinese words and phrases and be "understood" by a voice recognition device. If stable pronunciation which can be understood by the voice recognition device is achieved, learners can be confident that their pronunciation can also be understood by Chinese natives. Nevertheless, the use of cell phones as a tool for pronunciation practice is not anything new in the field of language learning; rather it is the utilization of the existing technology in a way that helps to build learners' confidence.

Method

In this paper we follow simple methodology where Chinese language learners at Hebei University were engaged by the researcher using a cell phone as the determiner of whether their pronunciation is or is not appropriate. These exercises follow the classroom pronunciation practice where the learner has to produce a given sound, word, phrase or sentence several times (Gilakjani, 2012). However, the differences between the classroom pronunciation exercise and this exercise is that when the cell phone replaces the role of the teacher, the evaluation of students' pronunciation is no longer verbal. Students will be able to read what their listeners hear from them. The student speaks and the phone transcribes the words such that the student will be able to see where he or she is wrong. This method requires a quiet environment, stable internet and the speaker has to be as close to the phone as possible. At end of the exercise we also used a

questionnaire survey method to get feedback from the participants of this voice recognition exercise.

Apparatus used for the exercise

This exercise was done with a Lenovo p770 cell phone. Lenovo is one of the most popular Chinese electronics brand which supports modern technology such as voice recognition, hence it supports Chinese voice input. The same exercise can be done with any other device as long it supports voice input. Since the Lenovo voice recognition software cannot operate without internet, we also used WIFI internet with a standard speed of 10 Mbps.

Participants of the Exercise

Twenty students, aged between 20 and 30 from different African countries, who were studying Chinese at Hebei University at the time when this research was done, participated in this voice recognition exercise. All the participants of this exercise had studied Chinese language for at least three months and were able to read simple characters. There were 12 girls and 8 boys with different language backgrounds such as; French speakers form Cameroon and Congo, Arab speakers from Sudan and Egypt, English speakers from Zambia, South Africa, Ghana, Liberia, and Malawiand Zimbabwe as well as Portuguese and Spanish speakers from Mozambique and Madagascar respectively. This is the exact nature of Chinese language classes in China where students from different continents with different backgrounds are combined in one class.

Procedures

For the purpose of this research the words for the exercise were written down both in characters and pinyin as shown in appendix 1. Each student was then given a chance to familiarize themselves with the words before the voice recognition icon on the phone was put on. Students would repeat the same word for at least five times after which the phone would transcribe the words into Chinese characters. The transcribed words would therefore determine whether the student's pronunciation is either wrong or correct. The stability of student's pronunciation was determined by counting the number of correctly transcribed words versus the wrong ones. The voice recognition software transcribes various words depending on one's pronunciation. Where the tone is wrong, a closer word is transcribed and where both the tone and consonant is produced wrongly a completely different word is transcribed. In cases where the student's pronunciation is correct and stable the correct word is repeated throughout. In some cases, a correct word and wrong word are transcribed, showing that student's pronunciation is not stable. This is illustrated in the following section of the voice recognition exercise.

Results of the exercise

Below is a list of 10 Chinese words which were produced by 20 students and various near correct pronunciation words were transcribed by the voice recognition software. For each word, only 4 different variations were recorded for the purpose of this research, however during the real exercise more variations were noted per-student.

Table 1
Variations of words for the 20 students

Right pronunciation	Variation 1 Closest pronunciation	Variation 2 Closer pronunciation	Variation 3 Far deviation	Variation 4 Extreme deviation
赔偿péi cháng	陪唱péi chàng	非常fēi cháng	培养péi yǎng	北疆běi jiāng
妈妈mā mā	慢慢màn màn	蛮蛮mán mán	买卖mǎi mài	那么nà me
喝水hē shuǐ	和谁hé shuí	瞌睡kē shuì	黑水hēi shuǐ	也睡yě shuì
知识zhī shi	只是zhǐ shì	指示zhǐ shì	既是jì shì	即使jí shǐ
吃饭chī fàn	吃法chī fǎ	鸡饭jī fàn	师范shī fàn	日饭rì fàn
什么shén me	事实shìshi	沙马shā mǎ	神马hén mǎ	是吗shì ma
你好nǐ hǎo	你号nǐ hào	你啊nǐ ā	你收nǐ shōu	以后yǐ hòu
亲戚qīn qī	秦池qín chí	亲亲qīn qīn	其器qí qì	心情xīn qíng
谢谢xiè xiè	婶婶shěn shěn	色色sè sè	四岁sì suì	全省quán shěng
搜sōu	收shōu	瘦shòu	苏sū	松sōng

The above noted variations of words which recurred most among the 20 students were presented in their order of closeness to the correct pronunciation where variation 1 represents the closest pronunciation, variation 2 representing a closer pronunciation, variation 3 representing a far deviation and variation 4 representing an extreme deviation. The standard deviation which can allow learners to be heard was defined as 1 and 2 while 3 and 4 were defined as far deviation which will distort the meaning of the word. The exercise showed that Chinese language learners, from different countries can imitate Standard Chinese with different levels of accuracy ranging from close deviation to extreme deviation. In some cases, different students with different accents would produce the same word differently yet the voice recognition software would transcribe it as correct. From the above variations it can be concluded that though learners of Chinese are from different countries and despite their accents, their pronunciation can still be understood. Apart from the above, participants were also able to determine whether their pronunciation is stable or not as shown in the following screen shots.

Figure 1: Screen shots for the word xiexie (谢谢

The above two screen shots for pronunciation of the word 谢谢 (xiexie) are for two participants one of which had an unstable pronunciation and one with stable pronunciation. On the first screenshot, the participant's pronunciation was not stable since at times the word was transcribed as "shengshi", "shisi", "queshi", 事实"shishi"and 试试"shishi". This clearly shows that this participant's pronunciation challenge is not on producing the word "xiexie", but on consistent production of the word. The second screen shot shows about 15 correct transcriptions of the word xiexie, this is evidence that the speaker is consistent in pronunciation. In such cases the learner can confidently speak because he is sure that his pronunciation can be understood.

We also observed that for some words the more the learner continues to repeat the word, the more he or she is able to produce the correct pronunciation. It seems like the participants were more sensitive to the transcribed words such that when they see wrong characters being transcribed they would adjust their pronunciation, as seen in the following screen capture of the word 什么 "shenme".
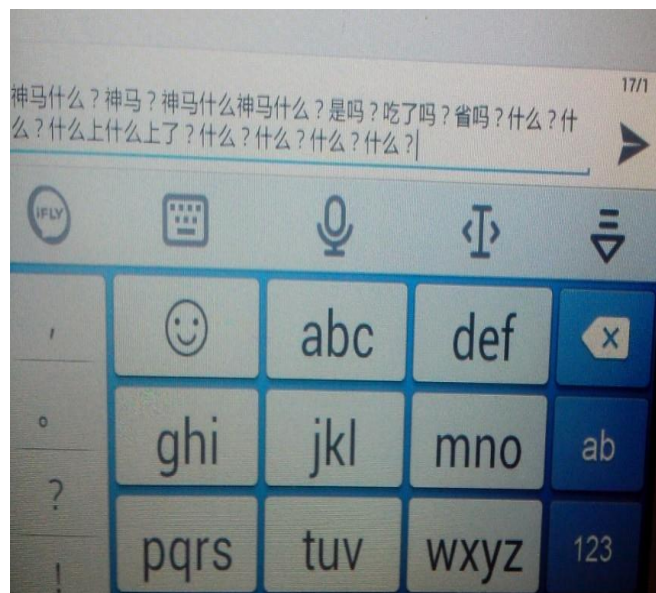

Figure 2: screen capture of the word 什么"shenme"

In the above screenshot, the first roll shows 7 wrong pronunciation of the word "shenme" which were recorded as "Shenma", "shima" or "chima" but in the second roll 7 correct words were transcribed out of 8. This suggests that when the learner makes an error he or she is able to adjust the pronunciation even without the guidance of the teacher. The use of voice recognition software makes language learners adjust their pronunciation when they notice the wrong transcriptions such that the more he/she produces the same word the more he will be able to produce it correctly. This is probably due to the fact that when a correct transcription is picked the speaker will try to maintain the same pronunciation.

In the above example, though the speaker was able to produce more correct words later but there were some times when wrong character would be transcribed. This shows that pronunciation practice is a long process where the speaker experiments with different pronunciation strategies until he/she is able to stabilize the pronunciation in terms of tone, pitch and tempo.

The majority of students had problems in producing certain consonants, in such cases participants were able to see what their listeners are likely to hear. In the following example the participant

produced the Chinese consonant /x/ as /sh/, so instead of producing "xiexie", closer words with /sh/ where transcribed such as "shishi", "shishui", "shishuai" etcetra.

Figure 3: Screen Capture for the word "xiexie"

More of these screen shots for students' pronunciation showing pronunciation variations are listed in Appendix A. In this exercise, talking to the phone was funny because the phone would respond to what it hears, this is different from human to human conversations where sometimes the listener would pretend to understand or discourage the learner by telling them that they do not understand anything.

After the pronunciation survey we administered, a questionnaire to the 20 participants of this exercise. It was observed that all the participants had Smartphones that had the voice recognition application; however none of them had knowledge of using this application as a tool for practicing pronunciation. Although all of the participants could not correctly produce all the words for this exercise, they found this method interesting and worth using as a complementary method for their pronunciation practice after class. During the practice, 60% of the participants were able to recognize their errors. Since these participants had only studied Chinese for three months, some could not recognize Chinese characters from complicated characters. This implies that the exercise requires learners who can recognize Chinese characters. In this paper we suggest that those students who passed HSK level 2 and above can find this method useful since they can read at least 300 Chinese characters.

The majority of participants showed interest in using this method on their own practice session since it is easy and convenient, however only 20% see this method as a complete substitution of traditional pronunciation practice. This indicates that at the moment, voice recognition method is only useful as a complementary method rather than a substitute of the learner-teacher pronunciation practice method.

At the end of the exercise, students were advised to use their phones as a tool to check their pronunciation. Voice recognition on cell phones is normally designed in such a way that even dialectical pronunciation can be transcribed as standard pronunciation, in other words, the voice recognition for Chinese phones is designed in such a way that close pronunciation is understood. Hence, foreigners should strive to at least achieve a level of pronunciation where at least the

voice recognition applications can transcribe their pronunciation correctly. The exercise was not meant to prove a theory, but to demonstrate that through the use of voice recognition students can recognize their pronunciation deviation and know whether their pronunciation is stable.

Discussion

Use of voice recognition as an aid in practicing pronunciation is something that students can do as a rehearsal for the real human to human conversation or student to teacher pronunciation practice. To understand the role of the cell phone or any device with voice recognition application we can use the following two pictures for demonstration.
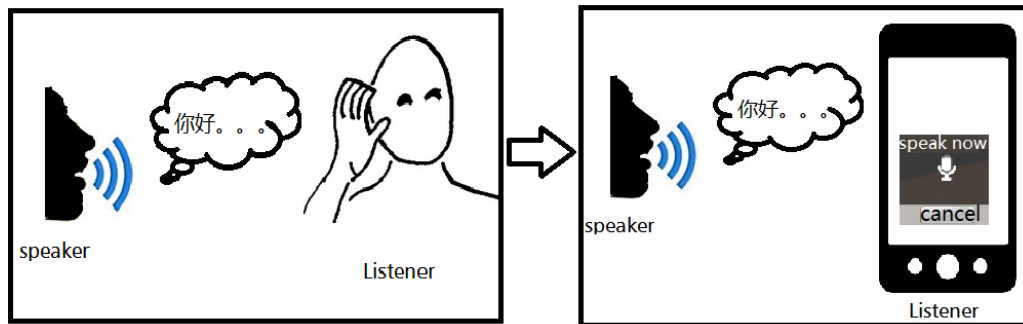
Figure 4: The simple model for voice recognition pronunciation practice

The emergence of voice recognition technology is therefore a transition from the human speaker and human listener interaction to human speaker and machine speech recognizer (machine listener) as shown above. Instead of speaking to a person who will judge the pronunciation based on his or her personal perception of the sound, the cell phone becomes the decoder of the words or phrases based on the pre-coded standard deviation for pronunciation of different words. Based on the transcribed speech, one can determine whether or not his/her speech production can be understood by human listeners. When we speak a foreign language to another person we normally do not get to see what we are saying ourselves. In a student-teacher pronunciation practice which remains the best practice method, the listener who is the teacher will constantly correct the pronunciation. In daily conversations the listener will either show facial expressions showing that he or she did not understand or will ask "what? (什么?) , speak again (请再说一遍), I don't understand（我不懂）etcetera. In all cases the listener is not able to see his/her pronunciation. However, as illustrated above the listener will be able to see whether his or her pronunciation is wrong.

Practicing Chinese pronunciation with the phone as the listener makes the environment funny and interactive even without a language practice partners. This is more of synchronizing learning with entertainment, a practice method which bossts interest in language learning because it is a kind of edutainment. The Online English dictionary defines edutainment as a method of learning through a medium such as computer software that both educates and entertains. This is not to suggest that edutainment is the best method of learning a language, neither are we proposing that learning is an unpleasant experience, rather the argument here is that synchronizing the two helps the learners to learn while they are playing with their Smartphones, that way learner's cell phone become a closer partner in language learning rather than an obstacle that distracts learning. As Ito (2009) puts it, edutainment promotes active participation and open ended learning. Some students are inactive in class for various reasons such as; being shy, fear for making errors and time limitation in the classroom setting. However, with the use of voice recognition applications on phones, students are able to actively practice their pronunciation anytime without any fear of

being embarrassed before the whole class, and at the same time they get immediate feedback. Voice recognition software does not comment on students' performance but it shows the student the type of error made. This kind of feedback helps, especially for those students who think that they have good pronunciation yet in reality their pronunciation is wrong. In the classroom setting when the teacher repeatedly says "your pronunciation is not appropriate" the student may end up feeling discouraged, or the teacher may get used to it so that even if errors are made he/she will not bother correcting them.

When students practice Chinese pronunciation, it is not how best they can produce a given single sound; rather what matters is whether or not their listeners can understand them. In some cases, students get discouraged when they fail to produce Chinese sounds as native speakers of Chinese would produce them; however, we believe that with the use of voice recognition application one can practice and master how to adjust pronunciation so listeners can understand despite the accent. Integrated use of voice recognition application with learning of Chinese is not the best method of learning Chinese pronunciation but it is a useful complementary method which can increase learners' confidence.

Conclusion

This paper attempts to demonstrate how voice recognition can be integrated into language learning. We conclude that while the traditional pronunciation practice still remains vital in foreign language learning, voice recognition applications on cell phones provides a broader platform for pronunciation practice. The voice recognition exercise in which we engaged 20 Hebei University African students shows that the technology is not as complicated as it used to be and gives language learners more opportunity to practice their pronunciation even without the teacher. Using this exercise, students no longer need to worry much about practice partners since their cell phones can act as a listener that judges whether or not the learner's pronunciation can be understood. The exercise shows that learners can see the type of pronunciation error which they are making thus helping them to develop an appropriate pronunciation strategy which can be understood by human listeners.

This exercise helps learners to do pronunciation practice which emphasizes making listeners understand. Since the practice can be done without a human language practice partner, this means that the learner can double his or her pronunciation practice time, where voice recognition pronunciation practice using the phone acts as a rehearsal of real-life conversation. This way the learner will be more confident and more conscious of the principles of communication to convey information.

It is our hope that as technological advancements continues to improve the efficiency of voice recognition applications, language teachers and language learners will continue to explore ways of utilizing such applications. This will certainly ease both the teaching and learning of difficult foreign languages such as Chinese. However, the complementary role that this pronunciation method plays in teaching foreign language still needs further research with a more systematic analysis on students' reaction and ability to utilize the application.

The main challenge at the moment is that language teachers rarely teach their students how to utilize voice recognition for pronunciation practice. Integrating voice recognition with language learning is a potential teaching aid which can help students to have more confidence. One other challenge is that the voice recognition applications currently available require internet, this limits the use of this exercise to those who have access to free or inexpensive internet. We look forward for the development of voice recognition application that does not require the internet as with android offline dictionaries such as the Youdao dictionary.

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Appendices A, B, and Cx next pages

Appendix A

Screen shots for the 10 words

赔偿peichan

妈妈mama

喝水heshui

知识zhishi

吃饭chifan

亲戚qinqi

什么shenme

你好nihao

谢谢xiexie

搜Sou

Appendix B

Questionnaire for use of voice recognition application

Answer the following questions with Yes or No, using **Y** *for Yes and* **N** *for No.*

Do you have a smart phone with a voice recognition application?

Did you know about using voice recognition application for practicing pronunciation?

Were you able to realize your pronunciation errors during the voice recognition practice?

Would you prefer to use your phone for pronunciation practice rather than practicing with your teacher or friend?

Do you think voice recognition applications should be used in learning Chinese?

Did you find the practice session interesting?

Were you able to produce all the words correctly?

Does this practice method make you enjoy learning Chinese?

Will you use this pronunciation practice on your own?

Are you now able to use this method alone without somebody's help?

Data from the Questionnaire

	Percentage
Students who had cell phones	100%
Knowledge about voice recognition as a pronunciation practice	0%
Students who could realize their errors	60%
Students willing practice on their cell phones without teacher's help	20%
Those who think that voice recognition applications should be used in learning Chinese	80%
Number of students who found the method interesting	75%
Those who produced all the words correctly	0%
Those who think that this method make learning of Chinese interesting	65%
Those who are willing to use voice recognition for pronunciation practice as a complimentary method	100%
Those who could use Voice recognition method without somebody's help after the practice	100%

Appendix C
Table: Results of the questionnaire survey

	Percentage
Students who had cell phones	100%
Knowledge about voice recognition as a pronunciation practice	0%
Students who could realize their errors	60%
Students willing practice on their cell phones without teacher's help	20%
Those who think that voice recognition applications should be used in learning Chinese	80%
Number of students who found the method interesting	75%
Those who produced all the words correctly	0%
Those who think that this method make learning of Chinese interesting	65%
Those who are willing to use voice recognition for pronunciation practice as a complimentary method	100%
Those who could use Voice recognition method without somebody's help after the practice	100%

Editor's Note: Early research in programmed instruction pointed to immediate knowledge of results being superior to delayed knowledge of results. Email is faster than waiting for the next weekly class, but is not immediate. The question is how effective is explicit or implicit corrective feedback received via email?

The impact of email-based corrective feedback on Iranian EFL learners' correct use of past tenses

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Iran

Abstract

An area that recently attracted increasing attention is providing of feedback on learners' writing accuracy through the Internet. Previous research in this area has focused largely on synchronous communication such as chat, with fewer studies assessing asynchronous technologies such as email. Therefore, this study aims at investigating the effectiveness of asynchronous computer-mediated corrective feedback, both-explicit and implicit, via email, on increasing the correct use of past tenses. Forty-five Iranian elementary EFL learners were randomly assigned to two experimental groups, receiving explicit and implicit corrective feedback respectively, and one control group receiving no corrective feedback. Each group included 15 participants. After the treatment, a post-test was administered to assess the probable increase in the correct use of simple past and past progressive tenses. Analysis of the results through two separate ANOVAs revealed that the experimental group 1, who received significant explicit corrective feedback, outperformed the control group in terms of the correct use of simple past and past progressive tenses. The experimental group 2 outperformed the control group in terms of the correct use of past progressive tense. While the findings support the current view on the effectiveness of corrective feedback through technology, due to the scarcity of research, more investigation is merited as there is much more to be gained regarding this burgeoning field.

Keywords: Computer-mediated communication (CMC), asynchronous CMC, synchronous CMC, corrective feedback, e-mail, noticing hypothesis

Introduction

Since the introduction of the Internet as a means of communication and the overall prevalence of computers, more and more people have been using electronic media to cover a host of purposes such as interpersonal communication, sending/receiving information, educational and language learning and teaching perspectives. The application of computer and the Internet can be expected to have a myriad of positive effects on language learning. It has been proved that communication through the Internet can have a significant motivational effect on the students (e.g., Meunier, 1996; Warschauer, 1996) which further helps them improve their communicative skills in both oral and written form. According to Quan-Hasse, Cothrel, and Wellman (2005), the introduction of computer technologies such as the Internet, email, chat, etc., into educational environments has made it possible for learners to communicate ideas, information, and their feelings without any limit on time and space. Similarly, Zhao (2006) refers to the application of the Internet and states that the Internet is the first major medium of communication that allows people to establish new social contacts outside the face-to-face context as well as to maintain existing ties formed in corporeal contexts. Carter (1997) also states that the emergence of faxes, email communications, and word-processed texts has changed the ways in which written language can be utilized to maintain interpersonal interaction among different interlocutors within their social, cultural, and learning context. According to Fey (1998) and Boone (2001), technology-based language learning has revolutionized the world of education and made it possible to transcend boundaries

of classroom walls and to learn in new ways. Therefore, there is a need to further explore the advantages and potential effectiveness that this medium has to offer in pedagogical environments.

Computer-Mediated Communication

Language educators and specialists have recently begun to discover the potentiality of computer technologies and in particular computer-mediated communication (CMC) for language learning and teaching. The term CMC was first coined and introduced by Hiltz and Turoff (1978) while experimenting with computer conferencing on the Internet. Barnes (2002) defines CMC as a wide range of technologies that pave the way for human interaction and sharing of information through interconnected networks of computers including email, discussion groups, newsgroups, and real-time chat. December (1997) also states that CMC is a process of human communication via computers, involving people, situated in particular contexts, engaging in processes to shape media for a variety of purposes. Having long been adopted in language learning and teaching, CMC has been proven to be more effective than class-restricted environments in that students no longer feel bored and frustrated with monotonous materials and methods of teaching and can learn new things in more interesting and effective ways. Fey (1998) maintains that, "computer networks allow students to transcend boundaries of classroom walls and to learn in new ways" (p. 86).

According to Warschauer (2001), CMC or "online communication refers to reading, writing and communication via networked computers" and comprises of:

- Synchronous computer-mediated communication, whereby people communicate in real-time via chat or discussion software, with all participants at their computers at the same time;

- Asynchronous computer-mediated communication, whereby people communicate in a delayed fashion by computer, e.g. by email; and

- The reading and writing of online documents via the internet. (p. 207)

Recently, pedagogical contributions of computer technologies have been extensively researched and beneficial outcomes have been reported. CMC can be greatly utilized in order to work on the writing improvement of English learners because, according to Goodman and Graddol (1996), computer-mediated technologies are mostly concerned with written texts through English language. Additionally, by making a comparison between CMC and face-to-face communication, Bordia (1996) aptly concludes that CMC is "a combination of written and oral styles of communication" (p. 150). Maynor (1994) also indicates that email is one of the primary means of communication regarding asynchronous CMC (ACMC) and represents itself as a converging point for both oral and written modalities in a two-way communication. This means that computer-mediated writing also exhibits characteristics of face-to-face communication. ACMC, as the name speaks for itself, is communication in which interlocutors have the opportunity to: deliberate, review and revise or even cancel the flow of communication before sending the information to the recipient (Heisler & Crabill, 2006). This valuable property of ACMC helps learners reflect on the content they are going to convey and be critical of what they have in mind before communicating it to others. Therefore, asynchronous communication can deeply involve learners in the processes of critical thinking (Lee, 2004) and problem solving (Jonassen & Kwon, 2001) by demanding more focused and purposeful communication. Warschauer (1995) also emphasizes the role of email in CMC and says that email is the most important application regarding the Internet. It has also been suggested that using computer technologies can help learners increase their opportunities to use target language (e.g., Barson, Frommer, & Schwartz, 1993). Thus, these opportunities result in the improvement of the quality of written and spoken language (Sotillo, 2000) and negotiation of meaning (Blake, 2000). Finally, Sotillo (2000) maintains that because of the delayed nature of email, learners have more opportunities to

produce syntactically complex language resulting in a significant improvement in their writing accuracy.

Corrective feedback and learning

In the course of learning target languages, it is quite possible that learners deviate from target-like forms by making syntactic errors and mistakes which, according to Schmidt's (1990) *Noticing Hypothesis*, are indicative of the differences between the target form and learners' inter-language. In cases like this, teachers usually resort to giving students appropriate feedback to guide them towards target structures. The mismatch between what the learners receive as input and what they produce as output can be effectively dealt with by appropriate corrective feedback provided by the teacher (Campillo, 2003) which helps learners integrate correct language. According to Lightbown and Spada (1990), corrective feedback is an indication to learners by teachers that their use of the target language is erroneous and needs to be modified. Brown (1988), also states that feedback should be provided for learners as it helps them experience the effect of what they have produced as a guide to their future output.

Having identified an error in the process of interaction, teachers can resort to two types of negative corrective feedback as a response to the mismatch: *explicit* and *implicit* corrective feedback. According to Campillo (2003), "explicit corrective feedback involves the explanation of a formal aspect after an error has been made. In turn, implicit corrective feedback refers to ways which indicate that the learner's output is somehow erroneous, and needs to be reformulated" (p. 210). Appendix A summarizes definitions and examples of corrective feedback strategies proposed by Lyster and Ranta (1997) as cited by Sauro (2009, p. 99). Campillo (2003) also states that corrective feedback is crucial to the development of second language as it provides learners with opportunities to contemplate on and take into account other possibilities. Campillo (2003) cites Carroll and Swain (1993) who indicate that corrective feedback is "also applicable to the foreign language (FL) context, in the sense that it may trigger the cognitive processes required for acquisition" (p. 212).

In conclusion, with respect to the aforementioned benefits of computer technologies concerning grammar accuracy and the importance of corrective feedback, it can be argued that research on learning outcomes following computer-mediated corrective feedback is still limited (e.g., Loewen & Erlam, 2006; Sachs & Suh, 2007) and to the best of our knowledge, no attempt has ever been made, especially in Iran, to assess the effectiveness of asynchronous computer-mediated corrective feedback−explicit/implicit, via email on the correct use of English tenses. Therefore, the present study was undertaken with the hope that its findings might help to enhance the practices of TEFL.

Theoretical background

Corrective feedback

Different studies have been carried out to investigate the effectiveness of both explicit and implicit corrective feedback on the grammatical and linguistic accuracy of learners' production. Campillo (2003) refers to some previous research on explicit and implicit feedback and mentions that Lightbown and Spada (1990) analyzed the effect of explicit corrective feedback in an intensive communication classroom having English as the second language and found out that teaching of formal aspects of a language contributed positively to the learners' linguistic and grammatical accuracy. Campillo (2003) also states that implicit corrective feedback has been thoroughly investigated and integrated into teaching environments, and positive results have been reported. Campillo (2003) refers to Lyster and Ranta (1997) and says that they carried out their study through different types of corrective feedback ranging from explicit to implicit at primary levels. Accordingly, as stated by Campillo (2003), "The findings of the study revealed that recasts

were the most used technique by the teachers (55% of the cases), followed by elicitation (14%), clarification requests (11%), meta-linguistic feedback (8%), explicit correction (7%), and repetition (5%) " (p. 212). In the same way, Zhuo (2010) conducted a study examining "the relative effects of explicit and implicit recasts on the acquisition of English noun plural by Chinese EFL learners" (p. 55). In this study, students were randomly assigned to three groups: the first group received corrective feedback through explicit recast. The second group received implicit recast. And the last group acted as the control group receiving no feedback. In line with Campillo's reports, the results of Zhuo's study showed that recasts were more effective than other types of corrective feedback in bringing students' attention to their erroneous structures. Sheen (2004) also examined the role of corrective feedback in increasing learners' uptake in communication classes in four contexts: "French Immersion, Canada ESL, New Zealand ESL and Korean EFL" (p. 263). Findings of this study indicated "that recasts were the most frequent feedback type in all four contexts but were much more frequent in the Korean EFL and New Zealand ESL classrooms (83% and 68%, respectively) than in the Canadian Immersion and ESL classrooms (55% for both)" (p. 263).

A brief review of corrective feedback literature revealed that most studies have so far been carried out with respect to recasts and little, if any, investigation has been conducted regarding other types of corrective feedback such as explicit, repetition implicit, etc.

Synchronous and asynchronous CMC and corrective feedback

According to Sauro (2009), as technology continues to make its way into language learning and teaching environments, written CMC holds particular promises for the learning of complex and low salience features and forms. Thus, synchronous and asynchronous CMC environments are ideal contexts for the investigation of corrective feedback during written communication as they provide student-teacher interaction in a way that increases students' awareness towards target language and eliminates time and distance limitations.

Corrective feedback in this sense can draw learners' attention to the discrepancies between learners' output and target-like norm and facilitate the occurrence of noticing of the gap which according to Schmidt (2001) is the "first step in language building" (p. 31). Sauro (2009) also states that according to Schmidt's (1990) Noticing Hypothesis "for learning to occur, second language learners must attend to and notice details and differences between the target language and their inter-language and its representation in their production of output" (pp. 96–97).

It should be mentioned that some studies have also investigated synchronous and asynchronous computer-mediated corrective feedback in language learning and teaching environments in order to substantiate its efficacy on the improvement of learners' linguistic and grammatical abilities. For example, Hanson-Smith (2001) cites Holliday (1999) for his experiment with a large corpus of students' emails and mentions that Holliday "has established that electronic communication provides a range and distributive frequency of linguistic features comparable to other genre of writing and speaking, he suggests that the repetitive nature of email… assists learners in understanding linguistic cues" (p. 109). This study clearly shows that CMC can help learners improve grammatical accuracy of their writing due to the fact that they can use linguistic cues more frequently and therefore pay more attention to the accuracy of their writings.

Romm and Pliskin (1999) also support that ACMC through email provides learners with a friendly environment in which they no longer have the feeling of being isolated and excluded. Accordingly, they contribute more willingly to maintain the flow of communication, pay more attention to the teacher-provided instructions, and participate in interpersonal interactions more than before. Few studies (e.g., Lea, 2001) on ACMC and students' academic writing assignments show that students make use of online collaborative learning context, reflect on their own

learning, draw upon their peers' feedback in the construction of their own knowledge, and thus benefit in their own academic writing. In one study on ACMC, St. John and Cash (1995) found that an adult language learner dramatically improved his German via email exchanges with a native speaker, because the learner systematically studied and reflected on the new vocabulary and grammatical structures in his incoming emails and used this information to improve the content of his future letters with impressive results. This is indicative of the usefulness of learner's interaction with a more capable peer (Vygotsky, 1978) such as teachers, native speakers, etc, resulting in receiving and benefiting from appropriate feedback. Therefore, this can be viewed as an undeniable fact that ACMC via email exchanges can be expected to improve learners' grammar and linguistic awareness through corrective feedback provided by a more capable peer. More recently, Faghih and Hosseini (2012), Hosseni (2012), and Hosseini (2013) conducted studies examining the impact of asynchronous computer-mediated corrective feedback via email on the correct use of grammatical structures including articles, prepositions, and present tenses. The results of their studies reported significant increase in learners' accuracy.

Similarly, most studies on the efficacy of corrective feedback through SCMC have so far been conducted with respect to recasts and meta-linguistic types of feedback and promising results have been produced. In one study, Razagifard and Rahimpour (2010) investigated the effectiveness of corrective feedback through chat on learners' grammar improvement and found out that meta-linguistic corrective feedback is more effective than recasts in getting learners to both notice the gap and enhance their ability to correctly apply grammatical structures.

As opposed to email which is the most applicable tool regarding asynchronous studies, application of chat as a means of language learning has been gaining increasing popularity among scholars and researchers, likewise due to the fact that it resembles face-to-face communication in its immediacy of interaction.

The present study

The present brief survey of the related literature reveals that few researchers have so far embarked on investigating the effects of explicit and implicit computer-mediated corrective feedback through email in Iran and even internationally. Moreover, with respect to CMC, most studies in this field have so far primarily dealt with the impact of recasts and meta-linguistic types of corrective feedback via SCMC and chat. Consequently, the aim of the present study was to investigate the extent to which asynchronous computer-mediated corrective feedback might be effective in promoting learners' correct application of simple past and past progressive tenses and the following research questions were proposed:

Q1. Does asynchronous computer-mediated corrective feedback have any significant effect on the correct use of *simple past* tense?

Q2. Does asynchronous computer-mediated corrective feedback have any significant effect on the correct use of *past progressive* tense?

Method

Participants

The participants of this study consisted of adult elementary EFL learners from the Iran Language Institute (the ILI) in Tehran aged 16 but the mean age was 21. The reason for selecting elementary learners was that it was assumed that since they were beginners, they would not know much about the details of EFL syntax. In order to make sure of the learners' proficiency level and homogeneity, Key English Test (KET, 2009) developed by Cambridge was administered prior to the treatment. The participants were selected voluntarily and according to their access to the Internet out of the class sessions. Out of the subject pool, 45 participants were randomly

identified as two experimental groups and one control group. Each group consisted of 15 participants. The experimental group1 (N=15) received explicit corrective feedback, the experimental group 2 (N=15) received implicit repetition corrective feedback, and the control group (N=15) received placebo feedback. The assignment of the participants to the experimental and control groups was random as well.

Target Structure

Simple past and past progressive tenses were chosen in this study as target forms for two reasons. First, elementary EFL learners are already familiar with the basics of these structures. Thus, in this study, the emphasis was put on increasing the awareness over the correct use of past tenses rather than on instructing the learners how to use them. Second, these structures are known to be problematic as learners frequently fail to use them properly. Therefore, this study attempted to enhance the learners' ability to correctly apply simple past and past progressive tenses through asynchronous computer-mediated corrective feedback.

Instruments

The participants of this study were presented with their regular course books developed by the ILI. Elementary course books at the ILI comprise of ten units and each unit is further divided into two sections, and every section is covered in one session lasting for one hour and 45 minutes. Session one is devoted to conversation, grammar, and vocabulary. Session two covers reading, grammar, and listening. Classes are held twice a week. The total of twenty-one sessions covers the whole term for each of the three elementary levels at the ILI.

The participants were required to submit an email and the modified version of the same email after receiving corrective feedback from the second session on as home assignment every week after covering every unit, using a computer or a laptop out of the classroom. At the end of the treatment, learners' grammar improvement in past tenses was assessed using following instruments as their post-test:

1. Simple past and past progressive tenses

1.1. A conversation including 20 gaps to be filled with correct forms of simple past verbs (Walter & Elthworth, 2000).

1.2. Sixteen separate sentences to be filled with correct forms of simple and progressive past verbs (Walter & Elthworth, 2000).

1.3. Seven pictures to be described in past progressive verb tense (Walter & Elthworth, 2000).

1.4. A passage including 20 gaps to be filled with correct forms of simple and progressive past verbs (Morgan & Lieu, n.d.).

Procedure

Prior to the treatment, the participants were told that they were obliged to write at least one paragraph or maximum two consisting of 100 to 150 words every week. From the second session on, they were required to submit an email on a topic describing events in the past in line with their regular course book contents provided by the researcher as home assignments. All the participants in the three groups received the same topic every week. The total of eight writing topics was provided for the participants during the experiment. The experimental group 1 received explicit corrective feedback, i.e., the instructor indicated that an error had been made, identified the error and provided the correction, to which repetition was required by the participants as modified output.

Example (1), asynchronous corrective feedback−explicit:

The participant: in the past, when I learning English, we have a good teacher it become easier. I think that is something that provide our future and we can get the best end.….

Instructor's corrective feedback: in the past, when I was learning English (you should say I was learning English not *I learning English), we had a good teacher (you should say we had a good teacher not *we have a good teacher) it became (you should say it became not *it become) easier. I think that was (you should say that was not *that is) something that provided (you should say something that provided not *something that provide) our future and we could (you should say we could not *we can) get the best end.

Modified output by the participant: in the past, when I was learning English, we had a good teacher it became easier. I think that was something that provided for our future and we could get the best end.

The experimental group 2 received implicit repetition corrective feedback, i.e., the instructor repeated the learner's utterance highlighting the error by means of emphatic stress, underlined bolded uppercase words, to which reformulation by the participants was required as modified output. It is worth mentioning that the role of the emphatic stress was thoroughly explained to the participants as it required the participants to grammatically correct the underlined bolded uppercase words' usage by adding, deleting, changing, and modifying the surrounding or words within. It was also emphasized that the underlined bolded uppercase words had nothing to do with spelling mistakes.

Example (2), asynchronous corrective feedback−repetition implicit:

The participant: …. When I was go to school five years ago, I start English and I practicing every day ….

Instructors' corrective feedback: …. When I <u>WAS GO</u> to school five years ago, I <u>START</u> English and I <u>PRACTICING</u> every day.

Modified output by the participant: …. When I was going to school five years ago, I started English and I was practicing every day ….

In order to make sure of noticing the teacher-provided corrective feedback, the participants of the experimental groups were obliged to send their modified output as an independent email prior to receiving the next new topic.

The control group received placebo feedback, i.e., "topic relevant response that does not contain the target form in the same context", for example: "student: In Sweden the global warming is a problem. Native speaker: Many people believe it's a problem everywhere" (Sauro, 2009, p. 104) to which no modified output was required.

Teacher-provided corrective feedback for the experimental groups mainly focused on the correct use of simple past and past progressive tenses. Other grammatical deviations were corrected without bringing the participants' attention to them. At the end of the treatment, the participants of the three groups were presented with the post-test assessing the extent to which the treatment was successful in improving the experimental groups' ability over the control group's to correctly apply past tenses.

This study was conducted within a period of 8 weeks in the summer of 1390 at the ILI, Fadak branch in Tehran. During the experiment, the current researcher held all of the classes, taught the learners, distributed e-mail writing topics every week, provided appropriate corrective feedback to all the groups, and administered the post-test.

Results and discussion

Two separate one-way ANOVAs were calculated regarding the correct use of simple past and past progressive tenses and their means separately. Differences among the experimental and control groups were considered significant at the .05 alpha level.

Analysis of the Results on Simple Past Tense

In order to answer the first research question, descriptive statistics regarding the experimental and the control groups was calculated first. The summary is given in Table 1.

Table 1
Descriptive Statistics on Simple Past Tense

Corrective Feedback	N	Mean	Std. Deviation	Min	Max
Experimental Group 1 (explicit)	15	23.73	2.963	19	28
Experimental Group 2 (implicit)	15	22.73	2.631	18	26
Control Group	15	21.27	2.086	16	24

The minimum score was 16 which belonged to the control group and the maximum score was 28 which belonged to the experimental group 1. As Table 1 shows, the experimental group 1 who received explicit computer-mediated corrective feedback with the mean scores of 23.73 performed better than the experimental group 2 and the control group with the mean scores of 22.73 and 21.27 respectively. The experimental group 2 slightly outperformed the control group. The differences between the groups' mean scores are presented in the following figure.
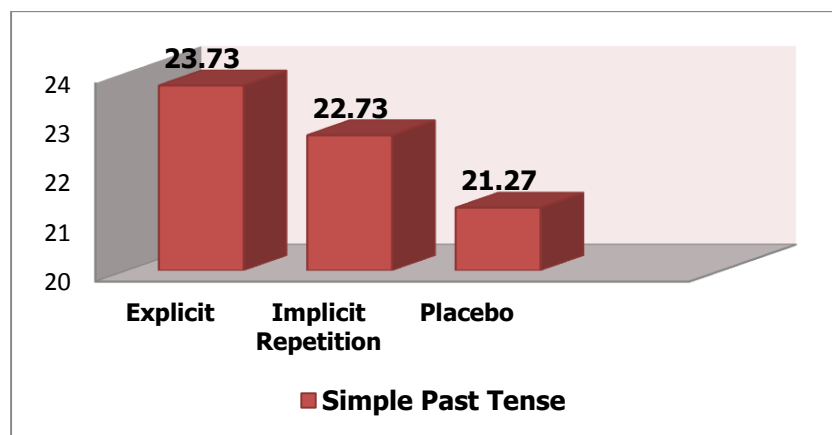

Figure 1 Group Means on Simple Past Tense

In order to investigate the effect of asynchronous computer-mediated corrective feedback on increasing the correct use of simple past tense, a one-way ANOVA was calculated. The results of ANOVA showed statistically significant difference at the p=.05 level of significance for the three groups in this study: $F(2, 42) = 3.453$, $p = .041$. Additionally, to find out where the difference(s) lie regarding the mean scores of the three groups, post-

hoc comparisons through the Tukey HSD test were carried out. The following table summarizes the results of post-hoc tests.

Table2
Results of Post-hoc Tests on Simple Past Tense

Corrective Feedback		Mean Difference	Std. Error	Sig.
Experimental 1 (Explicit)	Experimental 2 (Implicit)	1.000	.944	.544
Experimental 1 (Explicit)	Control Group	2.467*	.944	.033
Experimental 2 (Implicit)	Experimental 1 (Explicit)	-1.000	.944	.544
Experimental 2 (Implicit)	Control Group	1.467	.944	.277
Control Group	Experimental 1 (Explicit)	-2.467*	.944	.033
Control Group	Experimental 2 (Implicit)	-1.467	.944	.277

*. The mean difference is significant at the 0.05 level.

Table 2 shows that the mean difference between the experimental group 1 (M=23.73, SD=2.963) and the control group (M=21.27, SD=2.086) was statistically significant with the alpha level of .033 < .05. The mean difference between the experimental group 1 (M=23.73, SD=2.963) and the experimental group 2 (M=22.73, SD=2.631) was not statistically significant: .544 > .05. The mean difference between the experimental group 2 and the control group was not statistically significant as well: .277 > .05.

Analysis of the Results on Past Progressive Tense

In order to answer the second research question, descriptive statistics had to be calculated first. The summary is shown in Table 3.

Table 3
Descriptive Statistics on Past Progressive Tense

Corrective Feedback	N	Mean	Std. Deviation	Min	Max
Experimental Group 1 (explicit)	15	24.20	2.908	20	29
Experimental Group 2 (implicit)	15	23.60	1.993	21	28
Control Group	15	20.93	1.981	17	24

The minimum and maximum scores were 17 and 29 which belonged to the control group and the experimental group 1 respectively. As Table 3 shows, the experimental group 1 with the mean scores of 24.20 outperformed the control group with the mean score of 20.93. The experimental group 1 also performed slightly better than the experimental group 2 with the mean score of 23.60. The experimental group 2 also outperformed the

control group. The differences between the groups' mean scores are presented in the following figure.
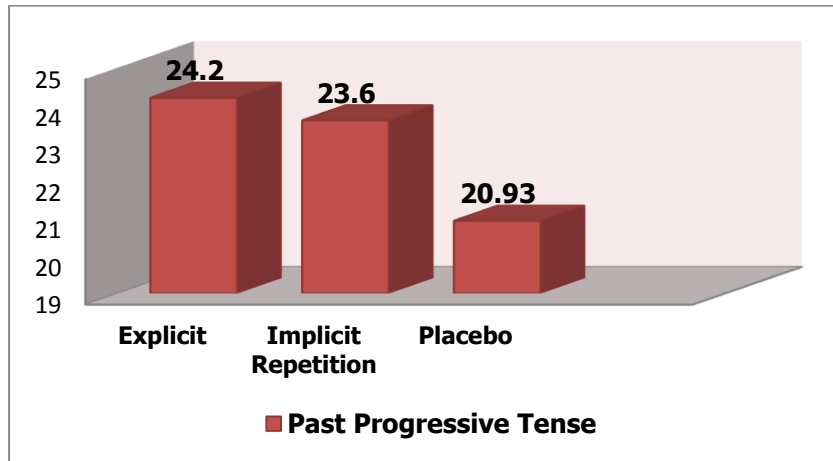

Figure 2 Group Means on Past Progressive Tense

In order to investigate the effect of asynchronous computer-mediated corrective feedback on increasing the correct use of past progressive tense, a one-way ANOVA was calculated. The results of ANOVA showed statistically significant difference at the $p=.05$ level of significance for the three groups in this study: $F(2, 42) = 8.321, p = .001$. Additionally, to find out where the difference(s) lie regarding the mean scores of the three groups, post-hoc comparisons through the Tukey HSD test were carried out. Following table summarizes the results of the post-hoc tests.

Table 4
Results of Post-hoc tests on past progressive tense

Corrective Feedback	Corrective Feedback	Mean Difference	Std. Error	Sig.
Experimental 1 (Explicit)	Experimental 2 (Implicit)	.600	.853	.763
Experimental 1 (Explicit)	Control Group	3.267*	.853	.001
Experimental 2 (Implicit)	Experimental 1 (Explicit)	-.600	.853	.763
Experimental 2 (Implicit)	Control Group	2.667*	.853	.009
Control Group	Experimental 1 (Explicit)	-3.267*	.853	.001
Control Group	Experimental 2 (Implicit)	-2.667*	.853	.009

*. The mean difference is significant at the 0.05 level.

Table 4 shows that the mean difference between the experimental group 1 (*M*=24.20, *SD*=2.908) and the control group (*M*=20.93, *SD*=1.981) was statistically significant with the alpha level of .001 < .05. The mean difference between the experimental group 1 and the experimental group 2 (*M*=23.60, *SD*=1.993) was not statistically significant: .763 > .05. The mean difference between the experimental group 2 and the control group was statistically significant with the alpha level of .009 < .05.

One of the main goals of this study was to investigate the probable effectiveness of asynchronous computer-mediated corrective feedback−explicit/implicit, via email on increasing the correct use of simple past and past progressive tenses. In line with some previous research and feedback (e.g., Lyster & Ranta, 1997; Campillo, 2003), the findings of the present study mostly support the effectiveness of corrective feedback on improving grammar accuracy.

Research question 1 dealt with the investigation of whether asynchronous computer-mediated corrective feedback could increase the correct use of simple past tense. Results of ANOVA on the post-test revealed that the experimental group 1 who received explicit corrective feedback significantly outperformed the control group. But the experimental group 2 who received implicit repetition corrective feedback did not show statistically significant improvement over the control group. The experimental group 1 did not show any statistical improvement over experimental group 2.

Research question 2 dealt with the investigation of whether asynchronous computer-mediated corrective feedback could increase the correct use of the past progressive tense. Results of ANOVA on the post-test revealed that the experimental group 1 who received explicit corrective feedback significantly outperformed the control group. The experimental group 2 who received implicit corrective feedback significantly outperformed the control group as well. But there was no statistically significant difference between the experimental group 1 and the experimental group 2.

With respect to the statistical results of ANOVAs, explicit corrective feedback proved effective in drawing learners' attention to the differences between their output and target norm. Therefore, findings of the present study, as far as explicit corrective feedback is concerned, support Schmidt's (1990) Noticing Hypothesis in enabling learners to notice the gap resulting in the improvement of learners' grammatical accuracy in terms of simple past and past progressive tenses. Similarly, Lu (2010) in one study found out that the experimental group who received explicit corrective feedback significantly outperformed the control group regarding the correct use of English tenses. In addition, superiority of explicit corrective feedback in increasing the correct use of tenses by Iranian EFL learners further supports St. John and Cash's (1995), Faghih and Hosseini's (2012), and Hosseini's (2012) findings on the effectiveness of corrective feedback via emailing on increasing structural accuracy of written output. This superiority can be due to a variety of factors. First, Iranian EFL learners generally tend to rely on their teachers to provide them with correct structures when they make a mistake. In this sense, they are most responsive when teachers explicitly locate the error, correct it, and require them to modify their language. Second, they tend to overlook teacher-provided corrective feedback, especially on their writings, when incorrect structures are indirectly brought to their attention. Third, they tend to use erroneous structures less frequently for which teachers provide some clues and they fail to apply them correctly.

Accordingly, with respect to the analysis of the results concerning implicit corrective feedback, the experimental group 2 who received implicit repetition corrective feedback did show statistically significant improvement over the control group in terms of the correct use of the past progressive tense. The present study further substantiates Büyükbay and Dabaghi's (2010) study in that their findings also showed that "the students in the experimental class, who were exposed to repetition as corrective feedback

in response to their errors, did better on their grammar test than the students in the control class" (p. 187). In the same sense, Lu (2010) concluded that implicit corrective feedback contributed to a significant increase in the correct use of tenses. Gholami and Talebi (2012) also found that "the experimental groups who received corrective feedback outperformed the control group who did not receive any feedback" in terms of "the acquisition of regular past tense" (p. 39).

With regard to the relationship between the two types of feedback applied in this study, there was no statistically significant difference reported. Apparently, this favors the view held by Truscott (1996) claiming that "grammar correction has no place in writing courses and should be abandoned" (p. 328). But by looking at recent studies (e.g., Sheen, 2007; Lee, 1997) and also the findings of explicit and implicit corrective feedback mentioned earlier, it would be wrong to generalize these findings to all aspects of language learning and corrective feedback as there is ample evidence confirming the applicability and efficacy of different types of corrective feedback on grammar improvement.

Conclusion

In this study, the impact of asynchronous computer-mediated corrective feedback on increasing the correct use of simple past and past progressive tenses was explored. On the basis of the results, it became evident that explicit corrective feedback had significant effect on increasing the correct use of English past tenses. Implicit corrective feedback, however, proved effective in increasing the correct use of only past progressive tense. The effectiveness of explicit corrective feedback over implicit corrective feedback was not statistically significant. The findings of the present study also provide further implications as to the efficacy of computer-mediated corrective feedback as a pristine searching medium on different aspects of language grammar. Nonetheless, some limitations are attributed to this study. First, the level of proficiency was elementary, and it is possible that more proficient learners would have performed differently. Second, the overall teaching method at the ILI, i.e., a modified version of ALM, may have affected the results. Finally, it should be admitted that most previous research on corrective feedback and positive contributions to grammar accuracy and different English tenses has been conducted in forms of written, oral, and chat. Therefore, generalizations to asynchronous computer-mediated via email especially in EFL environments should be made with great discretion. However, despite these limitations, it is believed that the findings of this study are encouraging as technology has been finding its way into pedagogical environments. Additionally and with respect to the results of the present study, it stands to reason that there is still plenty of room for further research in this field.

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Appendix A

Characteristics of Lyster & Ranta's (1997) categories of corrective feedback

Corrective Feedback Type	Definition	Example(s)	Nature of Error Indicated	Target-like Reformulation Provided	Elicited Output
Explicit Error Correction	Explicit provision of the target-like reformulation	You should say visited.	Yes	Provided directly	None or repetition
Meta-linguistic Feedback	Comments, information or questions (that may or may not contain meta-language but do not include the reformulation) related to the illformedness of the utterance	There's a mistake. It's past tense. Did you use the past tense?	No Yes Yes	No Provided indirectly through meta-linguistic hint at correct reformulation Provided indirectly through meta-linguistic question concerning rule governing reformulation	Identification of error and/or reformulation Reformulation Meta-linguistic response, yes/no response, or reformulation
Elicitations	A prompt for the learner to reformulate	Try that again. How do we say that in the past tense? Yesterday we	No Yes Sometimes	No No No	Reformulation Reformulation Reformulation
Repetitions	Repetition of all or part of the utterance containing the error, often accompanied by a change in intonation	Yesterday we visit my aunt.	Sometimes	No	None or repetition
Recasts	Implicit reformulation of all or part of the learner's utterance	Yesterday we visited my aunt. I visited my aunt last week.	Yes Yes	Reformulation provided Reformulation provided	Repetition Repetition
Translations	Target language translation of unsolicited use of the L1.	***	Yes	Reformulation provided	Repetition
Clarification Requests	An utterance indicating a problem in comprehension, accuracy or both.	Pardon?	No	No	Repetition, reformulation, or meaning elaboration

Educational technology best practices

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Abstract

This paper discusses major themes from several articles that focus on determining the best practices using educational technology. The face of education has changed from the traditional classroom, to a more technology enhanced presentation of learning for students, and this has happened over the past twenty years. Teachers, have had to learn not only how to teach content knowledge, but how to communicate content to a technological advanced student, using a variety of communication tools. Some teachers find this teaching environment challenging, hard, and not the easiest experience for them to be a successful teacher. However, some have excelled using better practices of implementing current educational technology, and creating learning experiences to a maximal high. This paper will look at current trends in educational technology that demonstrate leadership and administration of the best practices across grade levels and content areas in traditional and online learning environments, in the K-12 grades.

Keywords: distance education, best practices, technology, communication, differential instruction, collaborative learning, social media, rigor, game-based learning, professional development networks

Introduction

The changing world of technology has provided many ways of distributing a learning environment to a large population of students in different geological locations. The learning environment known as distance education, has grown by leaps and bounds on a national and global level over the past decade. There are many learning opportunities for students online; many instructors are incorporating social media such as Facebook and Twitter as communication tools to distribute instruction. Classrooms, across grade levels use iPads, iPods, iPhones, Tablets, Edmodo, and Wiki-pages and many more tools to facilitate and collaborates learning among students. This paper will explain some of the current educational technology and practices being implemented in distances education.

Best practices in relation to distance education

According to Connecticut's Department of Education State Education Resource Center (SERC) is defined as the best practices as a term used to describe "what works in a particular situation or learning environment" (Bruno, 2014). According to Grover J. Whitehurst, assistant secretary for Education Research and Improvement at the U.S. Department of Education Administrators, believes that educators use research data defined as evidence-based education to "integrate professional wisdom with the best available empirical evidence in making decisions about how the deliver instruction" (Bruno, 2014). Another view of best practices written by Baghdadi, (2011) states there is no universally accepted definition of what a best practice is. However, the United Nations Educational, Scientific, and Cultural Organization (UNESCO), believes that the best practices have four common characteristics: they are innovative; they make a difference; they have a sustainable effect; and they have the potential to be replicated and to serve as a model for generating initiatives elsewhere (Boven, & Morohashi, 2002). As an educator, arriving to an understanding of the best practices must be, one in which a teacher contemplates what will be the

best way to present a curriculum to students. A master teacher will realize that each class of students will be a mixture of different learning styles, personalities, and achievement levels. Understanding the delivery of instruction is a key component to understanding what best practices should be used with each individual student.

Best practices are an essential part of teaching a curriculum that represents the connection and relevance identified in educational research. Connect and relevance interject rigor into the curriculum by developing thinking and problem-solving skills through integration and active learning (Zemelman, Daniels, & Hyde, 1998). As an educator, this writer believes that the best practice for teachers would to understanding of students, in relation to their developmental differences and learning differences. A teacher must recognize learning differences in order to create a learning environment that meets the needs of all students. Teachers must able to understand differences and similarities of students, and identify patterns of learning. The patterns of learning can help teachers plan effective lessons for students. These plans are easily made if the teacher understands the stages of development, emotional and social patterns for students. Slavin, (2009) defines learning as a process by which, cognitive, emotional, and influences of experiences commonly come together. The skill of identifying these stages of development can only help teachers make instructional plans to promote learning.

Some of the most successful best practices that promote learning include using visual models, scaffolding, revisions and peer collaboration to improve pedagogy (Smith, 2006). Visual models allow students to visually see what is being taught and expands on the different learning modalities that students prefer as stimuli. Clark & Mayer (2012) state that "multimedia presentations can encourage learners to engage in active learning by mentally representing the material in words and in pictures and by mentally making connections between pictorial and verbal representations" (p. 71). The concepts of using visual models are vital best practices used in traditional classes and online learning environments. These models are important tools in order to meet the needs of the learning style referred to as visual learners.

Smith (2006) recognized peer collaboration as one of the many tools that are used to stimulate inquiry and deeper thinking, which is notably one of the best practices in education. The traditional face to face learning environment can witness peer collaboration while students work in groups on projects together. Online teachers can incorporate collaborative learning through communication, using tools such as discussion boards, e-conferences, blogs and emails. These strategies can help a student feel connected to their peers and instructor which will lead to a fundamentally better online experience (Hammerling, 2012). Communication provides stability to the instructor-student relationship and to student relationships with other students. The best practice of collaboration can communicate learning desires from students and instructors. One of the strengths of Liberty University's online learning programs is the communication and collaboration implemented in the assignments and relationships between students and instructors. The group projects allow students to use tools to integrate technology, and to become leaders in technology enhanced environments. Group projects facilitating Wikis and Google Docs, have made it possible for students to work together even when they are not in a face-to-face situations. Bower (2011) describes these learning tools as resources for students, which will help them, participate in collaborative activities which will increase student retention and knowledge. Collaboration has become imperative in distance learning, and it is now used in the development of new tools that will be used in online education in the near future (Greenberg, 1998).

Social media

Leaders in educational technology and distance education cannot turn their heads to the forms of social media such as Facebook and Twitter, because they are tremendous learning apparatuses. These newer trends of communication add a different twist to engaging students in learning and

the use of technology in education. Reid (2011) describes Facebook as a "literacy practice within the domain of social networking, which is governed by certain values, such as establishing and negotiating identity, building relationships, staying connected, brevity, conciseness and immediacy" (p. 59). The negative aspect of using Facebook relates to students using short abbreviated text as forms to communicate instead of formal writing skills. Reid (2011) argues using a closed-group tutorial Facebook page provides a critical literacy perspective for the purpose of social networking with and among students. Students experience literacy practice which creates a space for critical practice in relation to writing. Allowing students to write in codes or text form adds in making students feel comfortable, and they are freed from the constraints of academic conventional formal writing. Facebook has been the model for other educational technology tools used by teachers, such as Edmodo. Edmodo contains many of the same features present in Facebook and allows teachers to manage the setting to create a safe online environment for a class of students. Students can collaborate and interact with other peers as well as having access to posted curriculum material provided by the teacher. Using Edmodo allows students to comment on other student post, which is similar to Facebook without the recreational aspects or social goals of Facebook. Edmodo.com provides a safe internet environment for students (Holland, Muilenburg, 2011). During a case study, Kongchan, 2008, determined that Edmodo appears to be an ideal learning network which is so simple that observations and data show a high level of acceptance by the non-digital-native teachers. Changing technology have caused an increase in a digitally advanced population of students in the past ten years, leaving educators to incorporate tools for learning students, who can relate to and find challenging as a 21st century learner.

Twitter is another social media used in current classrooms. Wright (2010) describes a common criticism of Twitter as being considered a micro-blogging service in its infancy which leads to vacuous, inane and limited postings. However, with a deeper understanding, Wright (2010) reports "some micro-bloggers are highly engaging, garner large numbers of followers, and proliferate links and ideas on a wide range of topics including politics, the arts, technology and humor" (p. 261). During Wright's research, he also discovered Twitter was used by a wide range of educational researchers and bloggers, in order to promote and share both their own work, and other's work. Wright's case study revealed that short tweets helped students connect over of a period of seven weeks. Students started sharing personal feelings, along with academic successes. Students expressed it was initially difficult to converse thoughts into a tweet, participants agreed that they were forced to think very deeply about what to convey in their 140 characters limits. In other words, tweeting helped them pick the important concepts to relay and what exactly was needed to be said in their tweets.

Collaborative media

Other best practice tools used to communicate and collaborate is Google Docs and Google Drive. Students can collaborate and work together on group projects and assignments. Google docs, is an online document which can be shared with several students as a working document which can promote academic success. Teachers can apply feedback during the assignment, so students can make corrections and learn from errors and corrections. Google Drive provides a place for students and instructors to meet in order to discuss projects. Assignment corrections can be record on the assignment in a comment box or in a face to face setting in Google Hangout. An important quality of Google Drive is the tool Google Hangout. Hangout is a vital tool for online programs. These tools give online programs a feeling of connection with instructors and peers which online students sometime miss in online programs. Class sizes can be overwhelming for some educators in online and traditional classes. Google Docs can provide organization and ways for educators to collect and store student work. Teachers, keeping all class documents in Google Drive creates a

data bank easily searchable for documentations when required for explanations of grades and other official reasons (Adams, 2008).

Google Drive and Google Hangout are valuable tools for online education which allow students to gain a sense of the traditional classroom setting that is otherwise not common in the online field. These notable practices utilize standard classroom techniques such as participation and scaffolding, which are used in traditional classroom settings and are to be incorporated into online classes. This allows students to collaborate and engage in a learning environment. Instructors can setup online meetings which allow students to collaborate and create activities so that all learners can participate (Horton, 2012).

Game-based learning

Learning is a result of exploration and thought. Game-based learning, a best practice using technology, is an old concept of learning with a new digital face. Gamers will agree video games and educational games cause players to discover and use critical thinking skills. As Whitton (2012) describes, game-based learning (GBL) is learning by active play through games. Another definition of GBL is "any digital game that can be used in a learning context" (DeGrove, Bourgonjon, & Looy, 2012, p. 2026). Games should have two enticing qualities, competition and engagement. Digital games create active engagement. The game-based learning theory is grounded on the idea that engagement is in performing tasks while playing conditions stimulate the brain for active learning. Digital games are designed to integrate content material with game play; this allows the brain to process information from short- to long-term memory (Banikowski, 1999). Understanding how children process and store information is very important for educators. Game-based learning has paved the way for a new digital form of learning. Whitton (2012) states that game-based learning can be seen in both primary, and secondary schools, universities, adult education, military training, and medical practice. Digital games create active engagement which supports problem- solving skills in learning environments. She describes one advantage of game-based learning, saying it teaches learners the ability to work and learn from mistakes and failures in order to complete levels. Digital games provide a safe environment of play which allows students to learn from their failures, scaffolding through life simulations which helps students learn how to deal with possible real life failures. Games are great educational tools used across content areas for review. A new game on the web being used in online and traditional learning environments is KaHoot. KaHoot allows teachers to create questions with answers and students can compete for points. The game can be activated on the web and several classes can play against each other. The game requires a code and students can contribute to the game anytime during an assigned game time period making it useable for distance students.

Professional Learning Networks (PLNs)

Best practices can make a difference in instruction and benefits students in the learning environment. The learning environment extends out of the classroom for teachers. Teachers can benefit professionally from best practices also by using technology for professional development. Professional learning networks (PLN) put flexibility, convenience and accessibility in the definition of professional development for educators. According to Lieberman, (1995) teachers using PLNs have access to new and current education information, instructional strategies, technology resources and reflections on these tools effectiveness in education created by their professional peers. A PLN allows teachers to collaborate and connect with other professional teachers on topics the teachers are interested in learning more information on. Darling-Hammond, Wei, Andree, Richardson, & Orphanos, (2009) conclude improving professional learning for educators is a crucial step in transforming schools and improving academic achievement for students. Budget cuts in education have opened the door for professionals to look for a new

inexpensive ways to train teachers in current trends used in education. An online professional learning network can provide information to a large number of educators at no cost. The same tools teachers are using as instructional tools as best practices, can be used to create a network for educators. Wikis, Edmodo, Google Docs, Weebly are a few web bases resources to house a professional development network.

Conclusions

Educators spend countless hours developing lessons and searching for new materials to incorporate into instructional plans. Some teachers coach, sponsor clubs, attends two to three meetings during the work week after teaching class all day. The benefit of using online professional learning networks increases knowledge and provides continuing education for educators. The best practice of using current technology to connect teachers and students is one of the biggest advancements in educating 21st century teachers and students.

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Editor's Note: Teachers are continually redefining what is most needed to ensure success for their students. Here are the key areas recognized by one experienced teacher.

Guidelines for online students

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Abstract

Online student guidelines incorporate research to demonstrate effective strategies for student retention and success. The guidelines include strategies for both retention and success, so that both the students and the university achieve necessary goals. The main guidelines for effective online students revolve around five main concepts: learner readiness, technology, time management, discipline and motivation, and communication

Keywords: e-learning, online learning, higher education, blended learning, distance learning, teaching and learning, student preparation, best practices online, 21st education.

Introduction

Students need guidelines regarding how to be effective online learners. The main guidelines for effective online students revolve around: (a) learner readiness, (b) technology, (c) time management, (d) discipline and motivation, and (e) communication. Some of these main topics include additional sub-topics.

Levine (2011) articulated that distance education is a fabulous way to learn, especially if location and time are concerns. In addition, distance education offers learners the opportunity to take courses that may not otherwise be available through their current brick-and-mortar institutions and allows for some students, who have numerous other responsibilities and could not complete the coursework if they did not have the flexibility, and the opportunity to complete the coursework. Along with the advantage of location and time being irrelevant, is the disadvantage of added responsibilities. Online learners must incorporate unique learning and management strategies to ensure success in the online environment.

Discussion

Learner readiness

Face-to-face instruction has often been teacher-centered, whereas distance learning is student-centered (Simonson, Smaldion, Albright, & Zvacek, 2012). Distance learners need to be ready to learn. To start, students must be prepared to learn, which includes: (a) figuring out if they are prepared to learn online, (b) knowing their strong and weak learning style, and (c) having the necessary foundation for the content. There are various online self-assessments that can assist with figuring out the answers to these questions. For example, without solid reading and writing skills, one may find that the distance education course is very frustrating and too challenging in maintaining the pace (Levine, 2011). This is due to online learning weighing heavily in the area of literacy. If students do not have a solid reading and writing foundation, then the learners may find online learning to be more difficult than the same course that is taught in a brick-and-mortar setting. Students also need to know their strong and weak learning style, so they know how they learn. When information is being taught in their weak learning style, then the learners may transfer the information into another format, so they are learning with their strong learning style. By transferring the learning method, a student can generally understand the concept more easily. After the instructor determines course requirements, then students' skill levels need to be calculated (Conrad & Donaldson, 2012). Students need to be aware if they have the necessary

foundation for the content that is going to be taught. For example, a student who struggled in regular education high school chemistry and has not studied extensively, does not belong in college level organic chemistry. If students are enrolled in a course without the necessary foundation, then they are setting themselves up for failure.

Technology

Students who are pursuing an online course need to understand: (a) hardware and software requirements, (b) basic computer skills, (c) Internet searching, (d) research skills, and (e) how to access assistance. First, the institution needs to setup a hardware and software quiz, so students can easily check to make sure they have all the necessary hardware and software to complete the course requirements. Otherwise, there is immediate frustration and failure that occurs before students even get started. According to Palloff and Pratt (2013), it is important to teach the students the basics about the Internet and computer skills for those who are not technologically savvy. Students need to be taught the basics with how to use word processing, spreadsheets, presentation tools, and collaboration tools, which can easily be accomplished by having asynchronous, accessible tutorials on numerous tools. Many instructors assume students know how to search effectively on the Internet and conduct research. Unfortunately, this is not always the case. Some students will know how to do this, but many will not effectively search on the Internet or conduct scholarly research. Information needs to be included in orientation or in tutorials of how to most efficiently search for information on the Internet and how to effectively conduct scholarly research either via the Internet, databases, books, etc. Lastly, having a tab to access technical assistance (preferably 24 hours a day, 7 days a week) is a necessity.

Time management

Time management is essential in an online program. Palloff and Pratt (2013) claim that online courses are estimated to take up to twice as much time as face-to-face classes due to the amount of reading and processing that is required. In addition, students are generally accustomed to a leader-led environment, and now the students will be experiencing more of a student-centered environment. There are not set class times and sometimes there are not even set due dates. Levine (2011) stated that deciding when learning fits into one's schedule is a perk of virtual learning; however, it requires self-discipline to manage that advantage. Best practices include learners choosing a place and time to complete their coursework where they will not be disturbed. It is also best for students to create a syllabus with due dates that function within their schedules and meet any required course deadlines. Palloff and Pratt (2013) maintained that focusing on goals is the first step of time management. So, learners need to set short-term and long-term goals throughout the course. According to Palloff and Pratt (2013), the main time management techniques are: (a) setting goals that assist the students in gaining clarity; (b) setting priorities which help students to preview, view, and review materials to figure out which ones are important; (c) budgeting time, aides students in assessing how much time is needed per-week for the course; (d) avoiding overload encourages the learners to schedule time off from their schedules; and (e) having the students commit to the course by verifying that they have read and are going to abide by the syllabus.

Another facet of time management is having effective study skills. If learners are wasting time talking on the phone, watching television, playing videogames, or participating in another distraction during their scheduled study time, then the learners will get off-track. Setting aside specific times and places to study where the learners will not be distracted is a necessity. After learners have established when and where they are going to complete their coursework, they have completed deciphering the due dates, and they have established goals, then they may start to focus on time management priorities and strategies.

Priorities

Palloff and Pratt (2013) iterated that once students set their time management goals, then they need to set their priorities in one of the following four quadrants: (a) important but not urgent, (b) important and urgent, (c) not important or urgent, or (d) not important but urgent. Prioritizing according to these quadrants will help the student in figuring out what activities in their lives must be addressed immediately, which items can wait, and which activities can be erased. Conducting prioritization with this method regularly will assist with becoming more effective with time management and discipline.

Discipline and Motivation

Discipline and motivation are what will get students through their courses. According to Palloff and Pratt (2013), learners must take responsibility for their learning process. If students do not take initiative with their learning process in an online program, then the learners are going to run into trouble. One of the most pertinent characteristics of successful distance learners is that learners must be willing and able to be self-directing (Levine, 2011). Students must be motivated to learn from a distance and complete the course for intrinsic reasons, and they must have a motive that will drive them through the course. However, students are human, so it will help to motivate students to incorporate an instructor's page and for instructors to actively be present. Then the students know the facilitator is a human being who will be overseeing the students' progress or lack of it.

Communication

There are numerous ways to communicate in an online course, some options are: (a) email, (b) bulletin boards, (c) blogs, (d) tweets, (e) listservs, (f) chatrooms, (g) instant messaging, (h) text messaging, (i) video conferencing, (j) wikis, and (k) avatar spaces (Roblyer & Doering, 2013). Some online courses may offer additional methods to communicate and other courses will not offer all of these options. When instructors are communicating with students through feedback, Palloff and Pratt (2013) affirmed that instructors need to give informative and acknowledgement feedback, than students learn and feel recognized. One important facet of communication, in order to avoid the feeling of isolation, is to be allowed and encouraged to socialize. Understanding how to utilize technology is crucial in distance learning. The best practices are to teach the basics of how to use technology during the student orientation and have tutorials on collaborative learning and socializing. Levine (2011) stated that if virtual technology is accepted by the students, than the students will feel comfortable, trusting, and build relationships.

Sense of community

Palloff and Pratt (2013) declared that one vital success factor for online students would be to realize what is required in virtual classrooms. Learners need to be aware of the differences in communicating, socializing, teaching, and in addition to understanding how to receive academic and technological assistance. This understanding and support will help the university retain students and the students will be successful. Many students who participate in distance learning complain that it is a very isolated environment. Students need to build a community within their course, so they do not feel isolated, and they can learn more from one another. Levine (2011) commented that students have a responsibility to assist one another throughout the course, so when they work together they will build a community. So, students need to assist one another, effectively communicate, and be engaged in order to build a community.

Conclusion

The main guidelines for effective online students revolve around five main concepts: some main topics also include best practices for sub-topics. The main guidelines for effective online students are: (a) learner readiness, (b) technology, (c) time management, (d) discipline and motivation, and (e) communication. These elements were selected, because a distance learner must understand and incorporate these guidelines in order to be enrolled and be successful.

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