# Conquering Language Babel in the Classroom

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This article is an exploration of the available applications for speech to speech real-time translation software for use in the classroom. Three different types of machine language translation (MLT) software and devices are reviewed for their features and practical application in secondary education classrooms.

### Machine Language Translation: The Final Frontier

When looking back to the 1960's it is easy to remember the promise of "Going where no one had gone before!" Many evenings were spent sitting enthralled as spaceships zipped across the screen of our new color TV, traveling to distant galaxies. The crew of the Enterprise experienced exotic languages and used that magical Star Trek device the Universal Translator (UT). Imagine speaking to a being from another planet and hearing everything they said in English; it seemed incredible and so tantalizingly possible. For the eight year old mind, these leaps, which appeared implausible to adults, seemed to be child's play and right around the corner. Soon it would be possible to speak to people on those other worlds, simply by turning on the Universal Translator, the box with the rows of flashing lights and robotic voice. It was difficult to understand why there was a problem; all we needed was a box and some lights. Surely the UT would arrive in a matter of years, and everyone would be able to speak to one another effortlessly. We were all so excited!

### Reality Sets In

Flash forward to my 21st century classroom, in a school which is 70% diverse. On a daily basis the languages spoken there range from English and Spanish, to Filipino, Russian, and German. Needless to say, preparing differentiated instruction for this range of students can be frustrating, especially when language acquisition is not your best skill. I wake every morning having dreamt of the day when the UT would magically appear, allowing me to finally communicate accurately to ALL of my students. The knowledge that others share this same problem does not assuage my frustration of not clearly communicating with students, especially those with whom there is no shared common language. Numerous strategies to reach across the divide have crossed my desk, most meeting with only limited success. Despite the lack of early, easy to use translation software, what was available from websites such as Altavista's "Babelfish" and "Google Translate" were used extensively (with often hilarious results). Unfortunately many of the words used in the classroom do not translate with anything approaching accuracy by this early software.

Working diligently on my own knowledge of Spanish, which often resulted in gales of laughter when mixed up words, phrases, and gender came tumbling out (sometimes all at once), provided some relief, it still left a distance between my students and me. Through all of this, the long awaited UT remained elusive.

## Diversity on the Increase

The rate of diversity in public schools in America has risen dramatically since 1980. During this time period, about 9.1% of students enrolled in public schools spoke a language other than English at home. By 2009, the level had jumped to over 20% (U.S. Department of Education, 2009). Instead of getting easier, communication in the multicultural classroom appeared to be getting harder, with little help in sight. Despite the introduction of electronic bilingual dictionaries, software translation applications, and handheld translation devices, real-time machine language translation (MLT) had yet to enter the classroom. If one listened closely to technology news, however, hoof beats of an approaching cavalry could be heard in the distance.

Help in communicating with students who are English language learners (ELL) is no longer just over the horizon; it has arrived, and in a big way. Advances in translation algorithms accompanied with new inroads in statistical processes have been integrated with code-breaking strategies and improved processor speeds to increase accuracy of MLT in computer applications (Hutchins, 2005; Stix, 2006). The elusive Holy Grail of real-time speech to speech translation is here. MLT has become a reality; finally we are ready to help students and teachers communicate better. In order to look ahead to how we can integrate MLT into our classrooms, we first have to look backwards to understand why the software and devices which exist today have come to dominate the market, and why each one is best suited for our individual applications.

## A Backwards Glance at MLT

Code-breaking expertise developed during WWII at universities such as Massachusetts Institute of Technology (MIT) were employed to begin cracking the complexity of postwar language translation (Stix, 2006). These laborious processes of deciphering clues to a language's construction seemed perfectly suited to the newly developed electronic brains. Several premature successes were announced by the defense industry; however, none had achieved the sought for Holy Grail of universal language translation (Stix, 2006). Frustrated by repeated promises and setbacks, the defense department urged the U.S. military and security agencies to expand their cadre of human translators during the mid 1960's through the end of the lost decade of MLT in the 1980's (Stix, 2006). MLT development stalled for over ten years.

As the translation world entered the 1990's the first statistically based models for MLT began to emerge in the private sector. IBM introduced "Candide," software that relied solely on statistical processes to translate language (Stix, 2006). Gone were rule and role based translation models that dominated early MLT. The increased processing power of computers had led researchers to the next level, moving away from pure research into application (Stix, 2006).

SYSTRAN, an early player in MLT, was one of the few still in the game by the late 1990's. Their platform was utilized by "Altavista's Babelfish" and the early "Google Translator" (Stix, 2006). By 2007 Google had developed its own MLT software, which boasted enhanced statistical analysis as the basis of the translation platform (Stix, 2006). As we enter the second decade of the 21st century, MLT research is near achievement of its ultimate goal, a Universal Translator worthy of Star Trek. Today, several new products have emerged to battle with long time MLT giants, many of which are experiencing

phenomenal success. We will examine three types of applications that are useful for classroom use.

**There's an app for that!**

The most popular MLT apps available on the market today are designed for the Apple products market, with many now available on Android platforms. One of the most popular is Google Translate, a free application ranked #1 in the iTunes store. Google Translate works with over 60 languages, many of which can work as real-time speech translation language pairs.

You can speak or type in your phrase for translation, and the device will simultaneously print out and speak it back to you. Other benefits are voice recognition and real-time translation. One detriment stands out for schools that are Wi-Fi challenged; this app requires internet access. If your school is like many, sans Wi-Fi or blocks Google, you might want to try another app (iTunes Preview, 2012a).

iTranslate by Sonico GmbH is a real-time translation app that is similar to Google Translate. Current support is 50 languages with the option to have the text spoken in 18 different voices. iTranslate is a free app; however, the voice option is not included in the free version. Negatives for this application include the necessity for WiFi and the added cost for voice translation. One extra which can really help ELL students are the save features for frequently used phrases (iTunes Preview, 2012b).

While other free translation apps are available for the ipad/iphone/Android platforms, the majority come with limited functionality and sponsored ads in the translations (Nubarron, 2011). These impediments are not very practical in the classroom.

**The Translation Marketplace**

Sometimes you have to pay to play, and in the translation market, this cost is justified. Moving up to this level gives us several enhanced, while still affordable options. Up first is Jibbigo, which truly is a speech to speech translator, and while currently limited to only nine language pairs, it boasts the benefit of offline operation. Jibbigo provides an option that does not require internet connection for instant speech to speech translation. A wonderful feature of Jibbigo is the screen printout of your spoken and translated phrase.

One final benefit of Jibbigo is the price, currently only $3.99 per language pair. Set up with a pair of earbuds your ELL student can not only hear what you say in their own language, but see it in both (Nubarron, 2011).

A well-received app is SpeechTrans Ultimate, available from iTunes for $14.99. This app claims 99% accuracy through use of a cloud-based translation algorithm. Designed to run on the iOS or Android platform, this app has a unique voice recognition feature that obviates the need for language pairs. Just begin talking and select your output language, SpeechTrans does the rest.

The biggest negative is the continued cost. An initial investment of $14.99 gets you the app and 400 translations. Each "top-up" of 500 translations will cost you an extra $9.99. Customer support indicated they offer "bundled discounts" for heavy users, such as schools (Field Notes). In addition SpeechTrans has an application for Hearing Impaired students. Since SpeechTrans requires a Wi-Fi connection, the same restrictions apply as for the Google Translate app (iTunes Preview, 2012c).

Several additional applications are available for classroom use; however, they do not reach the level of real-time speech to speech translation.

They are worth a look, if only to confirm they will not fully fit your classroom needs.

ECTACO's jetBook K12 is one of a few standalone devices that meet the real-time speech to speech requirement. Available with over 190 languages, the jetBook K12 boasts many of the individual components teachers desire in handheld devices for the classroom. Real-time speech to speech translation is only one of several tools available on this device (ECTACO, 2011). In addition, there are SAT prep, language learning, math, and U.S. history courses available. Biology, Chemistry, and Physics are also included as well as Economics and Geography, and it comes with lifetime upgrades, 1000 free books, slang translation, games, a calculator, and several more exciting features. Since this device is designed for the classroom and not adapted to it, everything from the ergonomics to its durability has been designed for heavy teen use (ECTACO, 2011).

## Concluding Thoughts on MLT in the Classroom

Regardless of which app or device you choose, know that it will be improved faster than you can keep up. MLT apps released in March of 2011 have already been updated and replaced almost on a monthly basis. While we hope this article can act as a guide for your exploration, you will need to research up to the day you buy as several companies are on the verge of even more wonderful advances in MLT.

The eight year old child in us who still remembers the promise of the Universal Translator can now go to bed and dream of other fantastical devices. Now that we have achieved some of Star Trek's magic, the Phaser and the Universal Translator, how far behind can the Transporter and Warp drive be? Beam us up Scotty; we've got classes to teach.

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## Illustrations

**Google Translate**


**iTranslate**

**Jibbigo**


**JetBook**