

Adopting New Technologies to Drive Engaged Learning in English Language and Literature in the 21st Century in a Singapore Secondary School

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Abstract

The English Language Department in Ngee Ann Secondary School (Singapore) is continually seeking new and innovative ways to better engage students in language learning through the use of technology. With the increasing importance placed on communication skills, it has become important for us to facilitate this development in students. We believe that in addition to written language, it is important to develop students' awareness of their spoken language in various contexts, whether in social or formal situations while paying more attention to expression and articulation. This presentation will show how the school has innovatively equipped an InfoComm Technologies (ICT) enabled room with infrastructure and teaching and learning resources which have a language focus and how it has adopted a speech-recognition software for students to record their speech and review articulation and pronunciation as well as the structure of the language they have used. By doing this, teachers have harnessed ICT to analyse the inaccuracies in their use of language, intonation and articulation, and develop a better awareness of their areas for improvement, leading to improvement in oracy.

1. Introduction

As a Centre for Excellence for Information and Communication Technology (COE ICT) in the East Zone in Singapore, Ngee Ann Secondary School constantly seeks to apply innovative teaching and learning methods to enhance education. Given the constantly upgrading ICT scenario worldwide, delivery of pedagogy is now boosted by varied types of software and online platforms which make learning more engaging and effective. Partnering pedagogy with technology means the school has invested in manpower, infrastructure and resources to create a rich learning experience for students.

Different levels of students in Ngee Ann Secondary School have the opportunity to use various ICT tools to develop and improve their oracy skills. At Secondary One, students use an online platform to record their reading for rubric-assisted peer evaluation. At Secondary Two, they work in pairs to do podcasting projects which dwell on local issues. At the upper secondary levels, students are introduced to Speech-to-Text software as well as audio blogging. These serve to develop their awareness of their spoken language and engage them in concerted efforts to improve in oracy.

2. Literature review

ICT has brought about vast changes in the ways teachers build knowledge. Students are now more independent learners because as digital natives, they are empowered with skills which they can employ to learn collectively and individually. Instead of being "passive recipients", they become "active creators of knowledge" [Condie & Livingstone, 2007, p.339].

Open-source tools allow students to use simple equipment to record personal and stimulating interviews and news broadcasts through which students gain confidence in oral presentation. With the



right guidance, these digital immigrants can “create powerful analytical and synthetic work” [Campbell, 2005, p.35].

Podcasting promotes offline learning where students work together collaboratively to produce a podcast. Through this ICT tool, they learn valuable skills such as communication, time management and problem solving [Borja, 2005]. Also, the broadcasting or publishing phase of podcasting “provides the intrinsic push for them to reflect on their initial audio recordings and improve on their oral performance during the content creation phase” [Tan & Mong, p.8].

The use of ICT has also provided many opportunities for language learners to “communicate in the target language” [Yong Zhao, 2010, p.6]. In the past, feedback was subjective as it was dependent on the cultural and professional background of the instructor, thereby placing a variable factor on the outcome of the learning. Today, learners can use technologies like the speech-recognition software to hone their oracy skills as it can provide standardised, “instant and individualised feedback” [Yong Zhao, 2010, p.7].

The Speech-to-Text system (STS) allows for spoken words to be converted to text, similar to that in dictation, through a multi-tiered pattern recognition process. Utterances from a speaker are first captured, then processed and structured into a hierarchy of subword units using a pre-set pattern-matching algorithm. The system’s accuracy is measurable and largely dependent on the conditions under which it is evaluated, including factors such as the vocabulary size of the system, speaker-dependency, speech continuity and speech spontaneity [Learn Artificial Neural Networks, 2010].

STS also serves as an effective tool in assisting students with learning disabilities by enabling them to remediate the difficulties they have in writing what they know with what they can communicate orally [Wetzel, 1996]. Notably, students experienced improvement in spelling and vocabulary word recognition after regular STS treatments [Raskind & Higin, 1999]. On top of that, this ICT tool was also found to support the generation of narratives by students less fluent in writing when coupled with advance planning [Quinlan, 2004]. However, while the literature seems to suggest a positive correlation between the use of STS and the students’ ability to write fluently, there is limited study on the effectiveness of the system in improving their oracy.

Audio blogging facilitates conversational interaction and feedback among individuals and groups [Boyd, 2003]. Students’ thoughts are converted into text, speech, graphics and/or video. The teacher can scaffold their construction of text and peers can offer their perspectives and ideas.

The literature has suggested that for teaching and learning to be effective, careful consideration has to be given with regard to the choice of ICT tools. Their usefulness should be measured by their long-term impact rather than immediate outcome, which may often be merely temporary.

3. Research and evaluation

In May 2010, a survey involving 830 students was conducted in the school to study students’ preferences and practices in the use of ICT in their daily lives as well as in learning. The findings have guided the school to harness technology to facilitate more effective teaching and independent learning. The following data are extracted from the survey.

	Strongly Agree	Agree	Disagree	Strongly Disagree
ICT / Web 2.0 technologies enable me to learn how to source and evaluate information on the web.	243 (29.28%)	495 (59.64%)	67 (8.07%)	25 (3.01%)
I feel engaged when my teacher uses Web 2.0 technologies in class.	211 (25.42%)	492 (59.28%)	95 (11.45%)	32 (3.86%)
I feel motivated when my teacher uses Web 2.0 technologies in class.	198 (23.86%)	459 (55.30%)	132 (15.90%)	41 (4.94%)
I enjoy learning using ICT / Web 2.0 technologies during lessons.	221 (26.63%)	496 (59.76%)	81 (9.76%)	31 (3.73%)
ICT / Web 2.0 technologies have aroused my interest in learning.	196 (23.61%)	462 (55.66%)	134 (16.14%)	38 (4.58%)
ICT / Web 2.0 technologies enable me to learn better as compared to the normal teaching methods.	183 (22.05%)	445 (53.61%)	155 (18.67%)	47 (5.66%)

Table 1. Engagement of students in ICT-enabled lessons

The survey shows that 88.2% of students feel they are able to source and evaluate information through ICT and Web 2.0 technologies. This suggests that the students are ready to use the internet as a resource for their learning [Muneira & Nor, 2011].

With almost 80% of the students preferring their teachers to use ICT / Web 2.0 technologies during lessons, it implies that ICT-enabled lessons are likely to engage and motivate students to learn. Of course, there has to be a deliberate attempt to ensure that technology is used as a means to learning and not an end in itself for the sake of engagement.

4. Application and challenges

For oral lessons conducted at the lower secondary school level, students practise reading through the use of an online platform with an audio recording and playback function that allows them to review their own reading. Using the rubric provided and as a form of informal assessment, students are guided in providing their peers with feedback on the various aspects of reading such as pronunciation, intonation, expression and articulation.

Podcasting is done in pairs, with students doing the recording outside curriculum time after they receive basic recording instructions and the rubrics for the summative assessment. Generally, this task has been problem-free and students fare well as they are able to do multiple recordings before they submit their most satisfactory work to the teacher via email.

In audio blogging, students reflect on their thoughts before they create the blog responses. Their peers respond through providing their perspectives and teachers scaffold learning through questioning.

Students are introduced to the STS when they advance to the upper secondary level. To support the use of the STS, the school has set up an ICT laboratory which is equipped with ultra-mini personal computers (UMPC) with the STS installed. With each reading practice, the STS will record the student's progress, which can then be used for self-evaluation. This provides the students with a more structured form of feedback and can be used as material for self or peer rubric-assisted assessment whereby students learn to identify their own areas for improvement. As such, the students can examine their own speech for inaccurate sentence structure, grammatical errors or the use of colloquial English, all of which are characteristic of spontaneous speech. Students will also gain awareness in the manner they organise information cognitively and become more proficient in the way

they formulate the thoughts they intend to communicate. The software also heightens students' awareness in their own articulation and pronunciation by highlighting their weaknesses in this area of speech.

There are numerous challenges, however, in the implementation of the STS. Pre-existing limitations of the software include the inability of the programme to detect changes in intonation and expression, which are two essential aspects of speech that add conventionalised meanings to utterances.

The number of students in a typical class in Singapore stands at forty and this could mean a less-than-ideal acoustic environment for the use of STS. The process of setting up students' reading profiles in the UMPCs can be time-consuming. Students also have to read in a manner that is deliberate, so as to create detectable pauses for the STS to recognise the individual words more accurately.

Nevertheless, the STS is not without its merits. As a result of our multi-racial society, the localized form of Singapore English is characterised by strong influences from Chinese dialects and the Malay language syntactically and lexically. The Singapore English pronunciation also differs from external standards [Deterding & Hvitfeldt, 1994]. The teachers have observed that the STS could be advantageous in assisting students with their pronunciation errors and weaknesses in articulation, both of which are prevalent problems that stem from the students' habitual use of localised English.

A large proportion of our students are also reluctant speakers. Therefore, having a separate instructional block dedicated to oral language and literacy activities [Saunders et al, 2006] involving the use of the STS could help in making instructional goals of having good pronunciation and clear articulation more explicit to the students and help them in breaking down the learning into achievable steps [Nunan, 1998].

5. Summary and conclusion

ICT has certainly enhanced learning as teachers introduce new knowledge through media which are familiar to students. The tools and online platforms provide many teaching and learning opportunities beyond content mastery and include soft skills like socio-emotional learning of competencies such as responsible decision-making and social awareness. Schools in Singapore have embarked on the ICT trail to better prepare students for the ever-increasing pace of global competition, and this objective can be achieved with clever and discretionary use of ICT.

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