Enhancing Learning of Tamil Language in a One-to-One Computing Environment

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Abstract: In recent years, there seems to be an upward trend of Indian pupils entering primary one who take Tamil as their Mother Tongue but come from non-Tamil speaking home environments. Pupils are found to be unable to effectively communicate their ideas and opinions in the language. Some even express fear and anxiety when asked to communicate their ideas in Tamil. This paper presents how technology can be leveraged in a one-to-one computing environment to enhance learning of Tamil language. In this environment, there is an eclectic blend of mastery driven approaches as well as constructivist pedagogies. In a ubiquitous computing environment, the teacher is able to tailor lessons and support pupils of varying abilities; thus scaffolding their learning to build their esteem and to eventually help them to gain confidence to communicate their ideas. This paper will show the strategies used in a technology-rich environment and the challenges faced by the Primary one and two classes to achieve the objectives.

Keywords: Integration of Technology, One-to-one computing

1.   Introduction & Purpose

Recent statistics shows that there is a shift of Tamil language usage at home (Ministry of Education – Singapore, 2005). The survey data findings conducted in our school with Tamil pupils during the Primary 1 orientation in 2008 and 2009 also reflected similar trend with close to more then 40% of Tamil pupils coming from non Tamil speaking background. This implied a lack of authentic context of the usage of the Mother Tongue languages at home. As a result pupils faced communication problems both in written and oral presentation of ideas, constructing a grammatically correct sentence and using the language in a particular situation or context. With a greater emphasis in Standard Spoken Tamil pupils are challenged further in the appropriate contextual usage of Tamil language.

1.1   Background of One to One computing environment
The school in this research study is Beacon Primary School, one of the future schools under the FutureSchools@SG project jointly initiated by the local Ministry of Education (MOE) and the Infocomm Development Authority (IDA). Its primary purpose is to explore the possibilities of using and leveraging on information communication technologies (ICT) in the educational realm, especially in the area of Mother Tongue languages acquisition among young learners, aged 7 to 8. With this context in mind, series of lessons were designed and implemented emphasis on language building authentic activities with elements of play leveraging on information communication technologies (ICT). All Tamil pupils were given a laptop and are equipped with basic handling of the equipment. All Tamil pupils are taught how to use Microsoft PowerPoint, Microsoft Word and Photostory3 for Windows. The Tamil classroom is equipped with Promethean Interactive Whiteboard.

Studies have shown that ICT could be used to better engage learners (Fontana, Dede, White, & Cates, 1993; Herrington & Oliver, 1998; Jonassen, Peck, & Wilson, 1999; Sarapuu & Adojaan, 1999; Oliver & Hannafin, 2000; Jonassen, 2000; Jonassen & Carr, 2000;

Hollingworth & McLoughlin, 2001; Kearney & Treagust, 2001; Neo & Neo, 2001). Jonassen and Carr (2000) propose the approach of learning with technology where learners are actively involved in the construction of their own knowledge with the help of ICT tools. They propose that technologies could be used as mind tools for the construction of their knowledge and engaging learners in evaluating, analysing, connecting, elaborating, synthesising, imagining, designing, problem-solving, and decision-making.

ICT tools allowed learners to express their thought processes through multimedia presentations, that is, a consolidation of images, text, animation, and sound. Van Scoter (2004) advocates that digital images support language development. When young learners use ICT tools to tell stories they create with a combination of words and pictures, these stories present a wonderful opportunity for students to create an image with meaning for them. Haugland (1992) advocates that children using computers could gain intelligence, structural knowledge, long-term memory, manual dexterity, verbal skills, problem solving, abstraction and conceptual skills over those who did not use computers. The main idea is not to use the computer for itself but to include supporting activities that will allow for meaningful learning.

## 2.	Rationale, Approach and Design

### 2.1	Rationale
Learning in complex and ill-structured knowledge domains requires accommodation of multiple perspectives embedded in authentic activities and the reconciliation of those perspectives with personal beliefs resulting in conceptual change. We reason that instead of merely flooding the pupils with vocabulary from anywhere, we are constructing knowledge and context through authentic activities. The authentic activities also included elements of play as a pedagogical tool.

### 2.2	Approach
A case study approach was used in this study to look into how authentic activities with elements of play and leveraging on the use of ICT to better engage pupils in learning of Tamil language. A case study approach is being used to better understand the impact and potentials of the strategies used in this study. Case study research is not sampling research and it is also not the primary intent of this study to understand other cases. According to Stake (1995), it may be useful to try to select cases that are typical or representative of other cases, but a sample of one or a sample of just a few is unlikely to be a strong representation of others. The most important criterion of using case study as a research method is to maximise what we can learn from this instance.

### 2.3	Design
The lessons are designed based on the three concepts of authenticity, learning with technology, and play as discussed above. Students were engaged in an authentic setting by playing. Using the experience and resources built during play (e.g., digital images and vocabulary), they created digital stories using ICT tools. A diagram depicting the basic lesson design flow and its stages is presented in Figure 1 below.

The pupils were provided platform to enrich vocabulary by tying literacy with context using ICT tools. Examples of this strategy include the using of digital images, e-books, and online resources to build and understand the set of vocabulary used in the theme. Students were prompted to discuss about the topic. Figure 2 and 3 depict the usage of Big Books and Interactive White Board to engage pupils in the initial stage of this lesson design.

Figure 1 – Lesson Design and Stages of Implementation
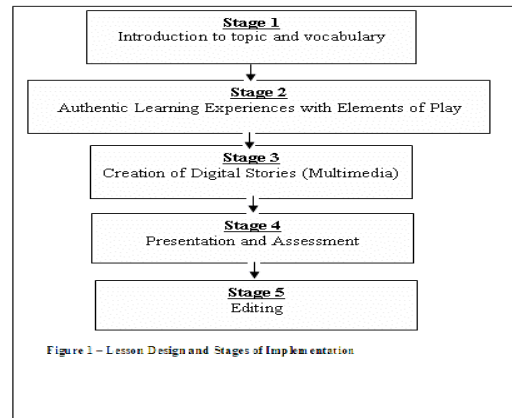
Stage1 – Introduction to topic and vocabulary

Stage 2 – Authentic Learning Experiences with Elements of Play
Pupils will go through an authentic experience or learning journey. These learning experiences help them internalise the information they gather and serve as a platform to verbalise their meaning making. Peer collaboration and interaction is a means for the pupils to articulate their thought processes.

Stage 3 – Creation of Digital Story (Multimedia)
Using the resources accumulated during the authentic activity, pupils to create digital stories. These stories are the outputs of their authentic learning experience.

Stage 4 – Presentation & Assessment

Pupils can present their creations in the following ways:

a) Pupils save their creations in the computer network shared folder for their peers to assess based on a checklist (see Annex 1 for details). Peers to write their feedback by ticking or crossing appropriate boxes with the criteria listed and provide feedback to their classmates.
b) Pupils save their wok in the computer network shared folder for teacher to assess the digital story based on a set of rubrics. Teachers to provide feedback for improvements.
c) Pupils present the digital story to the class. Teacher to ask questions to elicit response from the pupils to explain reasons behind the text, images or audio recorded. Teacher and peers to give feedback for further improvements to the story based on a checklist provided (see Annex 1 for details).

Stage 5 - Editing

Pupils take ownership in learning by editing after feedback was given by peers or teacher. Depending on the time frame, students may edit as many times as they want.

3.   Research Methods

3.1   Pupils' Performance
A diagnostic test was conducted at the start of academic term to assess the reading, listening and speaking levels of the pupils. Pupils' performance was also examined using alternative assessment and their end-of-year oral assessment. The components assessed in alternative assessment included oral communication. Pupils' artefacts like the digital stories also provided a good platform to gauge the progress of their speaking skill. It was a good way for

teachers to assess the use of vocabulary and the ability to synthesise images and ideas appropriately.

It was observed that more than half of Tamil pupils were not confident to speak or were not fluent in the language. About 25% of the Tamil language pupils were not able to read fluently.

3.2 Teachers' Reflection Notes and Observations
Teachers' observations were recorded in their journals. The entries included anecdotes and reflections. Observation includes noting pupils' engagement level in the lessons and activities. The indicators for engagement were:

1) 85-100% active participation in group discussions hands-on activities;
2) the number of times students edit or re –record their digital stories;
3) the number of times students contributes an idea;
4) the number of times students ask each other or teacher to clarify their doubts;
5) the participation by students who were less responsive (quiet and shy pupils)

3.3. Pupils' and Parents' Surveys and Interview

Teachers conducted a survey to find the language spoken at home. This survey facilitated in understanding the home background and the comfort level of usage of Tamil at home. About more then 60% of the Tamil Language students spoke in Tamil respectively, yet they could not articulate fluently at the first diagnostic test.

A pupil survey was also carried out to better understand pupils' interest and motivation of the lessons and activities. Pupils wrote their feedback on the activities they enjoyed best throughout the year. Pupils were also interviewed and parents given a survey on the impact of these activities on the pupils' oral skills.

4. Discussions of Findings

4.1 Authentic Activities
A series of authentic activities with real-world relevance, requiring pupils to examine them from a variety of perspectives, and with opportunities for collaboration were carried out. Pupils were brought to the Jacob Ballas Children's Garden (Singapore Botanical Gardens) to make comparison between their neighbourhood playgrounds with the garden which instil a care for nature. They used PhotoStory 3 for Windows to create their own digital stories. Pupils had an hands on experience making murukku, learning the Malay martial arts, Silat. The projects also required them to collaborate and work together. Although the end products may be done individually, but the accumulation of resources (e.g., digital images, vocabulary, peer editing) were done as a group.

4.2 Pupils' Engagement and Behaviour
The engagement level of pupils was notably high during the lesson activities was observed. Pupils were also observed to be more persistent as they recorded their readings many times trying to perfect their end products. The peer evaluation process also provided the avenue for them to think through more deeply with their productions. Pupils were actively explored different ways to present their digital stories with technologies (e.g., the Tablet PC, presentation software, sound recording software). Pupils interacted in their Mother Tongue languages more frequently during their Mother Tongue classes. The self construction of the digital artefacts encouraged pupils to take more ownership of their learning.

In addition, the number of tasks completed within the time given also increased. This was possibly due to the pervasiveness use of ICT tools to augment the learning of the languages. The skills acquired from one digital story to another also taught them to use one tool and adapt it into another context. The programme also realised that students learnt to work together. It was observed that they are more engaged when they work in groups.

It was noted that the checklist and observations of each pupil gave them opportunity to value students' little progress. Shy students came out of their shell before the year end.

4.3   Learning Abilities

In order to bridge the different language abilities and needs, some groups were given additional time to complete the tasks and additional scaffolding. The tasks were tailored to meet average and lower ability students.

4.4   Feedback from Parents

According to the parents' survey, the frequencies of the two Mother Tongue languages being used at home increased. A parent reflected the following, "… We are using Tamil more often at home now as compared to before." Some parents reflected that they had been corrected by their children when they did not use Tamil correctly. A parent also reflected that her child had corrected the way she should pronounce the words in Tamil. The drama, show and tell, and storytelling sessions motivated the pupils to practice their lines at home with the family members. Some parents shared that these practice sessions helped them bond with their children. Pupils' survey showed that the students enjoyed the MT lessons. All the students requested for activities which involved use of more computer based activities in future.

4.5   Learning with Technology – Creation of Digital Stories

The process of the creation of digital stories allowed pupils to record their own voices when narrating their own scripts. The creation of digital stories places the technology in the hands of the learner and allowing the pupil to control its use within objectives that were constructed by the teacher. Hence, the creation of digital stories was a possible strategy that supported presentation and writing using ICT. Presentation and writing require skills like deciding goals, sequencing of ideas, composition of message and editing. Simple applications such as Microsoft PowerPoint and Photostory 3 were used for the creation. These software titles were easily available and widely used in the school. Digital story creation as an ICT-mediated strategy could enrich the classroom learning environment, the curriculum, and student learning experiences by providing an open-ended, creative and motivating productive tool in the classroom (Sadik, 2008). Pupils were observed to be motivated and excited in the use the ICT tools to develop their stories which they can relate to.

The element of play also provided an excellent vehicle for learning. Weininger (1978) emphasizes an inner reality (intellectual and emotional life) and an outer reality (world experiences) and the use of play to accommodate and connect these realities. This was evident in the digital stories created by the pupils. (Please elaborate on this point – very interesting if you can elaborate on this)

Pupil leveraged on ICT as an output platform to present each of their learning experience. The digital stories documented the rich experience they had during the play and revisited them to enhance on their projects. Assessment of the project facilitated the teachers in checking on the language literacy and provided the teachers with the pupils' progress.

5.   Issues and Challenges

As with many strategies to learning the usage of ICT has its limitations and challenges.

5.1   Pupil ICT readiness

The initial phase of introduction to both hardware and software was challenging and time consuming. Thus, getting pupils on task using the computers was challenging. At Primary One, many were not familiar with the computer notebooks, let alone the other software titles and programs. However, the pervasiveness of ICT mediated lessons soon paid off when pupils become more skilful with each lesson.

At times, the pupils may deviate from the task at hand and focus more on the less important features of the presentation. For instance, Microsoft PowerPoint is an easy and powerful to use for language learning. However, the choice given may be a disadvantage when students start to use too many fonts on one slide or spend more time on the graphics and transition motions than the language objective.

5.2   School infrastructure and support

ICT-mediated activities could consume many hours when it was an introduction to a new tool and when technical glitches disrupted the smooth running of the lessons. At times, dealing with network problems due to heavy traffic usage was overwhelming.

6.   Conclusion and Recommendations

This study, though descriptive in nature, had shown that the Tamil pupils have been actively engaged in constructing their own knowledge of the Tamil language with the help of ICT tools *(Jonassen and Carr (2000)*. Pupils have acquired basic competency in speaking, constructing simple sentences and communicating their ideas in Tamil language. Pupils who come from predominantly English speaking background shows promises of using the language at home. The authentic tasks enabled bonding between parents and child in completing the tasks effectively. As a future direction more authentic activities be introduced in school and laying the context for pupils to leverage on ICT tools to communicate the ideas.

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